TOPLINE ST-7097

MODEL

SERVICE MANUAL

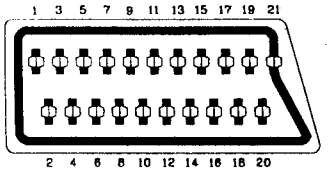
DO NOT CHANGE ANY MODULE UNLESS THE SET IS SWITCH OFF
The mains supply side of the switch mode power supply transformer is live.
Use an isolating transformer.
The receivers fulfill completely the safety requirements.

Safety precautions:
Servicing of this TV should only be carried out by a qualified person.
- Components marked with the warning symbol on the circuit diagram are critical for safety and must only be replaced with an identical component.
- Power resistor and fusable resistors must be mounted in an identical manner to the original component.
- When servicing this TV, check that the EHT does not exceed 26kV.

TV Set switched off:
Make short-circuit between HV-CRT clip and CRT ground layer.
Short C804 (150mF) before changing IC802 or other components in primary side of SMPS.

Measurements:
Voltage readings and oscilloscope traces are measured under following conditions.
Antenna signal 60dB from colourbar generator. (100% white, 75% colour saturation)
Brightness, contrast, colour set for a normal picture.
Mains supply, 220VAC, 50Hz.

PERI-TV SOCKET



	SCART 1 (SC050)		SCART 2 (SC051)	
1	Audio right output	0.5Vrms / 1K	Audio right output	0.5Vrms / 1K
2	Audio right input	0.5Vrms / 10K	Audio right input	0.5Vrms / 10K
3	Audio left output	0.5Vrms / 1K	Audio left output	0.5Vrms / 1K
4	Ground AF		Ground AF	
5	Ground Blue		Ground Blue	
6	Audio left input	0.5Vrms / 10K	Audio left input	0.5Vrms / 10K
7	Blue input	0.7Vpp / 75ohm	Blue input	0.7Vpp / 75ohm
8	AV switching input	0-12VDC /10K	AV switching input	0-12VDC /10K
9	Ground Green		Ground Green	
10	-		-	
11	Green input	0.7Vpp / 75ohm	-	
12	-		-	
13	Ground Red		Ground Red	
14	Ground Blanking		Ground Blanking	
15	Red input	0.7Vpp / 75ohm	-	
16	Blanking input	0-0.4VDC, 1-3VDC / 75ohm	-	
17	Ground CVS output		Ground CVS output	
18	Ground CVS input		Ground CVS input	
19	CVS output	1Vpp / 75ohm	CVS output	1Vpp / 75ohm
20	CVS input	1Vpp / 75ohm	CVS input	1Vpp / 75ohm
21	Ground		Ground	

INTRODUCTION

Ak18 is a 100Hz double scan color television capable of driving 28" 4:3/16:9 and 33" 4:3 picture tubes.
The chassis is capable of operation both in PAL, SECAM, NTSC playback color standards and multiple transmission standards as B/G, D/K, I/I+, and L/L'. Sound system output is supplying 12W (10%Thd) for left, right and center outputs of 8ohm speakers and 7W for 2 surround outputs of two 8ohm speakers. TV has Megatext or Tvtext teletext system.
The chassis is equipped with 1 full EuroScart, 2 other Scarts for AV input/output, front-AV/back-AV, headphone output, SVHS input, VGA input, two external speaker output, one center speaker and two surround speaker outputs.

IF PART

TDA4470/TDA4472

The TDA44XX is an integrated bipolar circuit for multistandard video/sound IF (VIF/SIF) signal processing in TV/VCR and multimedia applications. The circuit processes all TV video IF signals with negative modulation (e.g., B/Gstandard), positive modulation (e.g., L standard) and the AM, FM/NICAM sound IF signals. Active carrier generation by FPLL (frequency phase-locked loop) is the principle for true synchronous demodulation. VCO circuit is operating on picture carrier frequency. The VCO frequency is switchable for L´-mode. AFC without external reference circuit is alignment-free
and polarity of The AFC curve is switchable.
VIF-AGC for negative modulated signals operates on peak sync detection principle and for positive modulation on peak white/black level detection principle. Tuner AGC is adjustable with determining take over point. It has alignment-free quasi parallel sound (QPS) mixer for FM/NICAM sound IF signals.
Intercarrier output sound is gain controlled (necessary for digital sound processing). AM- demodulator is completely alignment-free with gain controlled AF output. Operation of the AM demodulator and QPS mixer (for NICAM-L stereo sound is parallel.TDA4472 is used for negative modulation and TDA4470 is used for both negative and positive modulation.

100Hz FEATURE BOX

SDA9205/SDA9257/SDA9254/SDA9220/SDA9280

The SDA9205 is a single IC containing three separate 8-bit analog to digital converters for video (YUV) applications. It provides 30-Mhz sampling rates at 8 bits. Different digital output multiplex formats are selectable on chip via several control inputs. The SDA9257 is the clock sync generator. It is I2C controlled. It has PLL locked-in behaviour is locked to TV mode. It clamps CVBS inputs and provides all horizontal and vertical sync signals and clocks for PAMUX, analog circuit decoder, the A/D converters, PSDN and Feature-box. SDA9220 is a memory sync controller which is responsible for driving the picture memory devices and generating sync signals. Together with the other devices of feature-box it enhances picture quality and offers special operating modes. It is set via I2C bus. The memory controller produces driving signals for the memory devices and the clock generator consists essentially of a PLL which generates the internal and exported system clocks from input clock LL3 or LL1.5 and synchronises them with the horizontal blanking signal.

SDA9280 is the display processor is an integrated triple 9-bit D/A converter which performs digital enhancements and manipulations of digital video component signals. It has 8-bit amplitude resolution for each input component with input sample frequency up to 30Mhz. DCTI (Digital color transient improvement), luminance peaking, 16:9 compatibility, delay for luminance and chrominance signals, zoom facility are tasks which are performed by this IC. The SDA9254 is a dynamic sequential access memory for 100Hz TV applications. It is a triple port dynamic sequential-access memory for high-data-rate video applications It is organised for the storage of planes of at TV field (NTSC, PAL, SECAM, MAC) in standard quality.

COMB FILTER

SAA4961

The SAA4961 is a single chip PAL/NTSC comb filter with internal delay lines, filters, clock control, synchronisation and signal switches. The comb filter function is realised in a switched-capacitor technic, so it has time discrete but amplitude continuos processing. The Y/CVBS input is first clamped and then fed to the delay-line and comb filter section via low pass pre-filter. This signal is also fed to the sync separator, where horizontal and vertical reference pulses are created. Bypass mode for secam mode can be forced by a control pin (BYP).
FSC is the sub-carrier input which is connected to the color decoder.

POWER SUPPLY (SMPS)

TDA4605

The Dc voltages required at various parts of the chassis are provided by an SMPS transformer controlled by the IC TDA4605 which is designed for driving, controlling, and protecting switching transistor of SMPS. Two optocouplers are used to control the regulation of line voltage and stand-by power consumption. Line voltage value is supplied by an oprtocoupler (CQY80NG) to the control input of SMPS IC on the primary side and regulation is controlled by variable resistor on secondary side of the stage. An ON/OFF signal comes from microcontroller and drives an optocoupler (MOC3023) to connect and disconnect the 220V AC line. A second transformer which is driven directly from mains AC input generates the necessary 5V DC stand-by voltage. Transformer produces 148/150V DC for FBT input, +/-16V DC for audio output 8.5V, 16V, 22V and 33V for the other parts of the chassis. The serial circuit and primary winding of the flyback transformer are connected in series to the input voltage. During the switch on period of the transistor, energy is stored in the transformer. During the switch off period energy is fed to the load via secondary winding. By varying switch-on time of the power transistor, it controls each portion of energy transferred to the second side such that the output voltage remains nearly independent of load variations. The required control information is taken from the input voltage during the switch on period and from a regulation winding during the switch off period. A new cycle will start if the transformer has transferred the stored energy completely into the load. The power supply is operating in the burst mode at typical 20 to 40Khz.

TUNER

UV1316

The UV1316 tuner belongs to the UV1300 family of tuners, which are designed to meet a wide range of applications. It is a combined VHF, UHF tuner suitable for CCIR systems B/G, H, L, L´, I and I´, D/K. The low IF output impedance has been designed for direct drive of a wide variety of SAW filters with sufficient suppression of triple transient. The tuning is available through bullt-in digitally controlled I2C bus (PLL).

Channel coverage of UV1316:

BAND	OFF-AIR CHANNELS		CABLE CHANNELS	
	CHANNELS RANGE (MHz)	FREQUENCY	CHANNELS	FREQUENCY RANGE (MHz)
Low Band	E2 to C	48.25 to 82.25 (1)	S01 to S08	69.25 to 154.25
Mid Band	E5 to E12	175.25 to 224.25	S09 to S38	161.25 to 439.25
High Band	E21 to E69	471.25 to 855.25 (2)	S39 to S41	447.25 to 463.25

(1). Enough margin is available to tune down to 45.25 MHz.
(2). Enough margin is available to tune up to 863.25 MHz.

Noise	Typical	Max.	Gain	Min.	Typical	Max.
Low band	: 5dB	9dB	All channels	: 38dB	44dB	52dB
Mid band	: 5dB	9dB	Gain Taper (of-air channels)	: -	-	8dB
High band	: 6dB	9dB				

Channel Coverage UV1336:

BAND	CHANNELS	FREQUENCY RANGE (MHz)
Low Band	2 to D	55.25 to 139.25
Mid Band	E to PP	145.25 to 391.25
High Band	QQ to 69	397.25 to 801.25

Noise is typically 6dB for all channels. Gain is minimum 38dB and maximum 50dB for all channels.

Channel Coverage of UV1315:

BAND	OFF-AIR CHANNELS		CABLE CHANNELS	
	CHANNELS	FREQUENCY RANGE (MHz)	CHANNELS	FREQUENCY RANGE (MHz)
Low Band	E2 to C	48.25 to 82.25 (1)	S01 to S10	69.25 to 168.25
Mid Band	E5 to E12	175.25 to 224.25	S11 to S39	231.25 to 447.25
High Band	E21 to E69	471.25 to 855.25 (2)	S40 to S41	455.25 to 463.25

(1). Enough margin is available to tune down to 45.25 MHz.
(2). Enough margin is available to tune up to 863.25 MHz.

Noise	Typ.	Max.	Gain	Min.	Typ.	Max.
Low band	: 6dB	9dB	All Channels	38dB	44dB	50dB
Mid band	: 6dB	10dB	Gain Taper	-	-	8dB
High band	: 6dB	11dB	(off-air channels)			

DIGITAL DEFLACTION PART

SDA9362

The SDA9362is a highly integrated deflection controller for TV receivers with doubled line and doubled field frequencies. It controls among others an horizontal driver circuit for a flyback line output stage, a DC coupled vertical sawtooth output stage and an East-West raster correction circuit. All adjustable outputs are I2C bus controlled. Inputs are doubled HSYNC and doubled VSYNC signals coming from sync switching IC which takes its inputs from TDA9143 IC and VGA sync input. It has also horizontal and vertical EHT-compensation input against beam current run away. The protection circuit watches an EHT reference and the sawtooth of the vertical output stage. H-output stage is switched off if the EHT succeeds a defined threshold or if the V-deflection fails. H- and V-blanking time is adjusted via I2C bus.

DIGITAL TV SOUND PROCESSING

MSP3410D

The MSP3410D is a I2C controlled single-chip multistandard sound processors for applications in analog and digital TV sets. The full TV sound processing, starting with analog sound IF signal-in, down to processed analog AF-out is performed in a single-chip covering all European TV-standards. It is designed to simultaneously perform digital demodulation and decoding of NICAM-coded TV stereo sound, as well as demodulation of FM or AM-mono TV sound. Alternatively, two carrier FM systems according to the German or Korean terrestrial specs of the satellite specs can be processed within the IC.

It has two selectable analog sound IF inputs: TV and SAT-IF sources. There is AGC for analog inputs:0.14-3Vpp. All demodulation and filtering is performed on chip and is individually programmable. All digital NICAM standards (B/G, I and L) are realised. FM-demodulation of all satellite and terrestrial standards are possible. Only one crystal clock (18.432Mhz) is necessary. External capacitors at each crystal pin to ground are required. They are necessary for tuning the open-loop frequency of the internal PLL and for stabilising the frequency in closed-loop operation. The higher the capacitors, the lower the clock frequency results. The nominal free running frequency should match the center of the tolerance range between 18.433 and 18.431Mhz as closely as possible. By means of standardised I2S interface, additional feature processors (TMS37600, Dolby Prologic digital audio signal processor for this chassis) can be connected to the IC. I2S bus interface consists of five pins: I2S_DA_IN1 and I2S_DA_IN2; For input, Four channels (two channels per line) per sampling cycle 32Khz. I2DA_OUT; For output, two channels per sampling rate of 32Khz. I2S_CL; For timing of the transmission of I2S serial data, 1.024Mhz. I2S_WS; The word strobe line defining the left and right sample.

DOLBY PRO LOGIC DASP (Digital audio signal processing IC)

TMS37600

The TMS37600 IC is a digital audio signal processor used when Dolby Pro Logic option is available.
It gets digitised sound from the audio processor IC MSP3410D for both 4 channels via I2S_DA_OUT pin and processes these information to give two outputs for MSP3410D: I2S_DA_IN1 (for right and left channels) and I2S_DA_IN2 (for center and surround channels). Synchronisation is obtained by 2 I2S busses: I2S_CL; For timing of the transmission of I2S serial data, 1.024Mhz and I2S_WS; The word strobe line defining the left and right sample at 32Khz. The IC is also I2C bus controlled to select the sound feature (stereo, ^D-phonic and Dolby Pro Logic).
It operates with a external DRAM in order to download some data which processes sound for sound features and sound modes. It has an external clock generator cycling at 27.576Mhz.

AUDIO AND VIDEO INPUT AND OUTPUT SOURCE SWITCHING

TEA6415/TEA6420

Video switching is performed by TEA6415 and audio switching is performed by TEA6420. Inputs for audio switch are: Three Scart left and right audio signals, front-AV audio for left and right channels. Outputs for audio switch are: Three Scart left and right audio signals, one left and right audio signal output for Scart_1 Left and Right input of MSP3410D. The audio switch IC is I2C bus controlled and gain of each input-output matrices are 0dB. Inputs for video switch are: front-end CVBS, three Scart video signals, and front-AV video signal and Y input from SVHS source. Outputs of video switch are three Scart video signals, one video output for PIP-video input and one output for switched Y or CVBS input of the comb filter. The video switch IC is also I2C bus controlled and gain of each input-output matrices are 0dB.

HEADPHONE OUTPUT

TDA1308

The TDA1308 is an integrated class AB stereo headphone driver. It gets its input from Scart2 left and right audio outputs of MSP3410D and has gain adjusting feedback from output to input signal.

VIDEO OUTPUT AMPLIFIER STAGE

TDA611Q

The TDA6111Q is a video output amplifier with 16Mhz bandwidth. It has a high slew rate. Automatic black-current stabilisation is possible by black-current measurement output. It has two cathode outputs: one for DC currents and one for transient currents. A feedback output is separated from the cathode outputs. An internal protection exists against positive appearing cathode-ray-tube flashover discharges with ESD protection.

VERTICAL OUTPUT STAGE

TDA8351

The TDA8351 vertical deflection circuit can be used in 110° deflection systems with field frequency from 50 up to 120Hz. With its bridge configuration the deflection output can be DC coupled with few external components.
Only a single supply voltage for the scan and a second supply for the flyback are needed. The drive voltage is amplified by an amplifier and fed to two amplifiers, one is inverting and the other is a non inverting amplifier.
The outputs are connected to the series connection of the vertical deflection coil and feedback resistor Rsense.
The voltage across Rsense is fed via pin9 to correction amplifier, to obtain a deflection current which is proportional to the drive voltage. The supply voltage for the TDA8351 is 15V DC at pin 3. The supply voltage generator has a separate supply voltage of 45V DC at pin 6.

SAW FILTERS

K9453 : Two channel switchable sound IF saw filter of BG, DK, I, L systems for input channel 2 and of L´ system for input channel 1.

K3953 : Two channel switchable video IF saw filter of BG, DK, I, L systems for input channel 2 and of L´system for input channel 1.

J3950 : Video IF saw filter for I system

YUV VIDEO AND SYNC PROCESSOR

TDA9143

The TDA9143 is an I2c bus controlled, alignment-free PAL/NTSC/SECAM decoder and sync processor.
It has been designed for use with baseband chrominance delay lines, and has a combined subcarrier frequency/comb filter enable signal for communication with a PAL/NTSC comb filter. The IC can process both CVBS input signals and Y/C input signals. The input signal is available on an output pin, in the event of a Y/C signal, it is added into a CVBS signal. The sync processor provides a two-level sandcastel, a horizontal pulse (CLP or HA pulse, bus selectable) and a vertical (VA) pulse. When HA pulse is selected a line locked clock (LLC) signal is available at the output port pin.
A fast switch can select either the internal Y signal with the UV input signals, or YUV signals made of the RGB input signals. The RGB input signals can be clamped with either the internal or an external clamping signal. IC has inputs Y C or CVBS from comb filter board. RGB signals coming from Scart1 are also injected into the IC. UV signal input and output are also ready for chromaninance delay line. One CVBS output is for teletext operation and it enters
The Megatext IC or Tvtext controller. Outcoming YUV signals enter the feature box for double scan 100Hz digital video processing. Horizontal and vertical sync pulses are added and they enter the feature box for production of double scan vertical and horizontal sync pulses and synchronisation signal LL1_5X.

RGB OUTPUT AND BLACK-CURRENT STABILISATION

TDA4780

The TDA4780 is I2C bus controlled post video signal processor with a baseband signal interface and two sets of analog RGB inputs. Doubled frequency color difference signals YUV coming from feature box are matrixed with the luminance signal to obtain the RGB signals driving the RGB output stage (TDA6111Q). Three analog input sets are available, one luminance/color-difference input signals and two sets of RGB and fast-blanking signals. One input set is used for RGB+fb signal coming from Megatext IC (for OSD and teletext) and the other set is used for RGB+fb signals coming from full Scart1. Different RGB matrices can be selected via I2Cbus, either PAL/SECAM matrix or the NTSC matrix. Saturation, contrast, and brightness controls are individually adjusted via I2C bus (for the luminance/color difference and RGB inputs). All adjustments can be synchronised with the vertical blanking interval. It expands lower signal levels, while higher signal levels are compressed to enlarge the contrast ratio and thus expands the portrayal in the direction of black. Adaptive black level control acts on the luminance signal, the darkest level of the active picture is detected and controlled to the internal reference black level. The automatic cut-off control measures the cut-off currents of the CRT using artificial black level signals provided on the outputs during three successive lines, the provided artificial black level equals the clamping level of the RGB or Y input signals. A luminance signal for scan velocity modulation of a line deflection can be provided if required.

AUDIO OUTPUT

TDA7264

The TDA7264 is a 25W+25W stereo sound amplifier with mute/stand-by facility. STPA control signal coming from microcontroller (when it is at high level) activates the mute function. IC is muted when mute port is at low level. Two stereo audio signals coming from audio module is injected to the inputs of the IC and a power of 12Wrms (10%) is obtained. An external pop-noise circuitry pulls AF inputs of the IC in order to eliminate pop noise when TV is turned on or off via mains supply connection.

SERIAL ACCESS 32K EEPROM

24LC32A

The IC s 32Kbit electrically erasable programmable memory. The memory is compatible with the I2C standard, two wire serial interface which uses a bi-directional data bus and serial clock.

MEGATEXT TELETEXT AND OSD GENERATOR

SDA5273

The SDA5273 is a single-chip IC for teletext, VPS, PDC, telecaption and OSD generator. Its input is analog CVBS with on-chip clamping circuit. It has analog RGB+fb output which enters into the RGB processor (TDA4780). It is I2C bus controlled or 3-wire USART-interface is selected. IC has two independent clock systems for acquisition and display. Its main functions are the decoding and display of teletext information coming from analog sources and the generation of OSD which can provide the TV with status information or menu (user interface) assistance. The Megatext is a real single chip solution which combines data slicer, teletext processor, VPS-decoder, page/pixel memory and display controller. The memory is extended by external DRAM to increase the teletext capacity up to 512 pages. The Megatext IC delivers analog RGB-output signals with a maximum amplitude of 2V peal to peak. The contrast/brightness of the RGB output signal can be controlled by software in linear steps without decreasing the amplitude resolution.
IC is controlled by an external controller (SDA30264) via M3L-Bus (USART, 2+1 wires). M3L-Bus increases the maximum data rate up to 1Mbits/sec and is thus 10 times faster than the I2C bus in standard mode.

MICROTEXT CONTROLLER (with TVTEXT option)

SDA5253

The device is TVTEXT tuning and control system and designed for a low cost TV-SET. The system offers an on screen display /OSD) and IR remote control of all functions. Display of program number, channel number, TV standard, analog values, sleep timer, parental control, mute and user interface are done by OSD. There is dual color single LED for IR active, and stand-by indication. There is 3 lines for external selection, 2 lines for TV standard selection, one stand-by line, 2 lines for PIP mode, Vga line and sound output mute line. System configuration is also controlled by the IC with service mode facility.

MICROTEXT CONTROLLER (with Megatext option)

SDA30C264

The SDA30C264 is the microcontroller used with Megatext option. Its architecture and instruction set are based upon that of the 8051 microcomputer. Like the 8051 it has many features which increase programming ease; extended internal data memory-space , variable manipulation in internal data memory, free stack location in data RAM, 4 register banks, special function registers, memory mapped I/O, individually addressable bits and a Boolean processor which gives the programmer the ability to improve the power of the software development. The IC communicates with the EPROM and produce the following input or output control signals; Agc_con, Pal_secam,Pip_mod_sw,On_off (stand-by) Pip_sel, Sdat and SclT (M3L bus) for Megatext IC, Scx_in_av (pin 8 information from 3 Scarts), AFC, Vga_fb, STPA (to mute audio output IC), IICENx.

PORT EXPANDER

PCF8574

The PCF8574 is an I2C bus controlled IC for standard selection control lines for the IF IC (TDA447X).
The IC has inputs for standard and L' control from the microcontroller and outputs for IF IC.

VGA SYNC POLARITY CONVERTER

74HC86

The 74HC86 is an exor logic IC. Its inputs are Vga horizontal and vertical sync signals of positive or negative polarity. Whatever their polarity, they are converted to higher polarity and IC has always positive polarity Vga horizontal and vertical sync signals

SOURCE SWITCH BETWEEN TV AND VGA SYNC SIGNALS

HEF4053B

The HEF4053B is a switch IC used to select sync signals entering feature box to provide correct sync signal between VGA and normal TV sync signals. Selection of sync couple is controlled by VGA_fb control signal coming from microcontroller.

CHROMINANCE DELAY LINE

TDA4665

The TDA4665 is a chrominance delay line. Its inputs are U-V signals and sandcastel signal coming from video processor (TDA9143). Output is the 1H delayed U-V signals entering into video processor.

DRAM

HYB514400BJ

The HYB514400BJ is the new generation dynamic RAM organised as 1M by 4-bit. it utilises CMOS silicon gate process as well as advances circuit techniques to provide wide operation margins, both internally and for the system user. This DRAM is used with Megatext IC to store teletext pages and with Dolby IC to download related coefficients of the ROM for different sound features.

EPROM

ST27C2001

The ST27C2001 is 2097 152-bit, ultra-violet erasable, electrically programmable read-only memory. This device is fabricated using power-saving CMOS technology for high speed and simple interface with MOS and bipolar circuits. All inputs (including program data inputs) can be driven by series 74TTL circuits without the use of external pull-up resistors. Each output can drive one series 74 TTL circuit without external resistors. Software for user interface and control of hardware circuitry are stored in this eprom IC.

IC DESCRIPTIONS AND INTERNAL BLOCK DIAGRAM

- TDA4470/TDA4472
- SDA9205/SDA9257/SDA9254/SDA9220/SDA9280
- SAA4961
- TDA4605
- TUNER (UV1315,UV1316,UV1336)
- SDA9362
- MSP3410D
- TMS37600
- TEA6415 / TEA6420
- TDA1308
- TDA611Q
- TDA8351
- TDA9143
- TDA4780
- TDA7264
- SDA5273
- SDA5253
- SDA30C264
- TDA4665
- HYB514400BJ
- ST27C2001

TDA4470 / TDA4472 :

The TDA4470 is an integrated bipolar circuit for multistandard video / sound IF (VIF / SIF) signal prosessing in TV / VCR and Multimedia applications. The circuit processes all TV video IF signals with negative modulation (e.g. L standard) and the AM, FM / NICAM sound IF signals.

Features:

- 5V supply voltage; low power consumption
- Active carrier generation by FPLL principle (frequency-phase-locked-loop) for true synchronous demodulation
- Very linear video demodulation, good pulse response and excellent intermodulation figures
- VCO circuit is operating on picture carrier frequency, the VCO frequency is switchable for the L'mode
- Alignment-free AFC without external reference circuit, polarity of the AFC curve is switchable
- VIF-AGC for negative modulated signals (peak sync detection) and for positive modulation (peak white/black level detector)
- TunerAGC with adjustable take over point
- Alignment-free quasi parallel sound (QPS) mixer for FM/NICAM sound IF sihnals
- Intercarrier output signal is gain controlled (necessary for digital sound processing)
- Complete alignament-free AM demodulator with gain controlled AF output
- Separate SIF-AGC with average detection
- Two independent SIF inputs
- Parallel operation of the AM demodulator and QPS mixer (for NICAM-L stereo sound)
- Package and relevant pinning is compatible with the single standard version TDA 4472; simplifies the desihn of an universal IF module

PINNING	PIN VALUE
1. Input sensitivity, RMS value	: 80mVrms
2. Input sensitivity, RMS value	: 80mVrms
3. SIF Input selector switch	: 2.0 V
4. Ground	
5. IF gain control range	: 65dB
6. Input sensitivity, RMS value	: 80mVrms
7. Input sensitivity, RMS value	: 80mVrms
8. IF gain control range	: 65dB
9. Ground	
10. Aveilable tuner-AGC current	: 2mA
11. Aveilable tuner-AGC current	: Min : 0.3V Max : 13.5V
12. Video output	: Min : 1.8V Max : 2.2V
13. Standard switch	: Min : 0V Max : 0.8V
14. L'switch	: Min : 0V Max : 3.0V
15. IF gain control range	: 65dB
16. Ground	
17. Internal reference voltage	:
18. FPLL and VCO	: Min : 1mA Max : 4mA
19. AFC switch	: Min : 0V Max : 0.8V
20. FPLL and VCO	: Min : 1mA Max : 4mA
21. FPLL and VCO	: Min : 1mA Max : 4mA
22. AFC output	: 0.7 mA/kHz
23. DC supplay	: Min : 4.5V Max : 9.0V
24. DC output voltage	: 2V
25. AF output-AM	: 2.2V
26. FPLL and VCO	: Min : 1mA Max : 4mA
27. Input sensitivity, RMS value	: 80mVrms
28. Input sensitivity, RMS value	: 80mVrms

SDA 9205:

The SDA9205 is a single monolithic IC containing three separate 8-bit analog to digital converters for video (YUV) applications. It utilizes an advanced VLSI 1.2mA CMOS process process providing 30-MHz sampling rates at 8 bits. Different digital output multiplex are selectable on chip via several control inputs, compatible to inputs of all Siamens Featureboxes, Siemens TV-SAM, and CCIR 656 output format.

The ADCs have no missing codes over the full operating temparature range of 0 to + 70 °C. Operation is from +5 V DC-power supply.

Features:

- Three equivalent CMOS A/D converters on chip
- 30-MHz sample rate
- 8-bit resolution
- No external sample & hold required
- On-chip input buffer for each analog channel
- Internal clamping circuits for each of the ADCs
- Different digital output multiplex formats :
  - 3 independent unmultiplexed 8-bit outputs
  - Multiplexed formats compatiple to inputs of all Siemens Featureboxes and Siemens TV-SAM
  - CCIR 656 output format
- Overflow and underflow outputs

PINNING

1. Digital outputs of ADC C (port C) C1 least significant bit
2. Digital outputs of ADC C (port C) C0 least significant bit
3. Output stages supply ground of port C
4. Underflow data output of ADC C
5. Overflow data output of ADC C
6. Output aneble of port C
7. Binary / two's complement output port C
8. Control inputs for different digital output multiplex formatsrefer to logic table
9. Control inputs for different digital output multiplex formatsrefer to logic table
10. Reference voltage high of ADC C (+2.5V)
11. Control inputs for different digital output multiplex formatsrefer to logic table
12. Analog positive supply voltage of ADC C (+5V)
13. Analog ground of ADC C
14. Reference voltage low of ADC C (+5V)
15. Analog voltage input of ADC C
16. Reference voltage high of ADC B (+2.5V)
17. Control inputs for different digital output multiplex formatsrefer to logic table
18. Analog positive supply voltage of ADC B (+5V)
19. Analog ground ADC B
20. Referece voltage low of ADC B (+0.5V)
21. Analog voltage input ADC B
22. Reference voltage high of ADC A (+2.5V)
23. Analog positive supply voltage ADC A (+5V)
24. Analog ground of ADC A
25. Analog voltage input of ADC A
26. Reference voltage low of ADC A (+0.5V)
27. Factory use only, connect to 0V
28. Binary / two's complement output port A
29. Factory use only, connect to 0V
30. Clamp input for all three channels
31. Underflow data output of ADC A
32. Overflow data output of ADC A
33. Output stage supply ground of port A
34. Digital outputs of ADC A (port A) A7 least significant bit
35. Digital outputs of ADC A (port A) A6 least significant bit
36. Digital outputs of ADC A (port A) A5 least significant bit
37. Digital outputs of ADC A (port A) A4 least significant bit
38. Digital outputs of ADC A (port A) A3 least significant bit
39. Digital outputs of ADC A (port A) A2 least significant bit
40. Digital outputs of ADC A (port A) A1 least significant bit
41. Digital outputs of ADC A (port A) A0 least significant bit
42. Output enable of port A

43. Output stages supply voltage of port A
44. Output enable of port B
45. Underflow data output ADC B
46. Overflow data output ADC B
47. Output stages supply ground of port B
48. Digital outputs of ADC B (port B) B7 least significant bit
49. Digital outputs of ADC B (port B) B6 least significant bit
50. Digital outputs of ADC B (port B) B5 least significant bit
51. Digital outputs of ADC B (port B) B4 least significant bit
52. Digital outputs of ADC B (port B) B3 least significant bit
53. Digital outputs of ADC B (port B) B2 least significant bit
54. Digital outputs of ADC B (port B) B1 least significant bit
55. Digital outputs of ADC B (port B) B0 least significant bit
56. Output stages supply voltage of port B
57. Clock input
58. Digital ground
59. Format sync input
60. Binary / two's complement output port B
61. Digital positive supply voltage (+5V)
62. Output stages supply voltage of port C
63. Digital outputs of ADC C (port C) C7 least significant bit
64. Digital outputs of ADC C (port C) C6 least significant bit
65. Digital outputs of ADC C (port C) C5 least significant bit
66. Digital outputs of ADC C (port C) C4 least significant bit
67. Digital outputs of ADC C (port C) C3 least significant bit
68. Digital outputs of ADC C (port C) C2 least significant bit

SAA4961:

The SAA4961 is an adaptive alignment-free one chip comb filter compatible with both PAL and NTSC systems and provides high performance in Y/C separation.

Features:
- One chip adaptive multi-standard comb filter
- Time discrete but continuous amplitude signal processing with analogue interfaces
- Internal delay lines, filters, clock processing and signal switches
- Alignment-free
- No hanging dots or residual cross colour on vertical transients
- Few external components

It is possible to switch the comb filter into one of the following 3 modes:
1. **Comb mode** : In this mode, luminance and chrominance comb filter function are active. Chrominance output pin (pin12) outputs comb filtered chrominance signal, luminance output pin (pin 14) outputs comb filtered luminance signal and CVBS output pin (pin15) outputs delay compensated CVBS signal.
2. **Comboff mode** : In this mode, luminance comb filter function is turned off, but chrominance comb filter function operates. Chrominance output pin (pin 12) outputs comb filtered chrominance signal, luminance output pin (pin14) outputs delay compensated CVBS signal and CVBS output pin (pin 15) outputs delay compensated CVBS signal.
3. **Bypass mode** : In this mode, no IC-function is active. Cext is bypassed to chrominance output pin (pin12) and Yext/CVBS is bypassed to luminance output pin (pin 14) and CVBS output pin (pin 15).

PINNING	PIN VALUE
1. Subcarrier frequency input	: 200mVpp, Min : 100mVpp, Max : 400mVpp
2. Internal connected	
3. Bypass mode forcing	: HIGH level input voltage Min : 2.4VDC, Max : Vcc
4. Internal connected	
5. Decoupling capacitor	: 1.25VDC, Min : 1.1VDC, Max : 1.4VDC
6. Internal connected	
7. Analogue supply voltage	: 5VDC, Min : 4.75VDC, Max : 5.5VDC
8. Analogue supply voltage output buffer	: 5VDC, Min : 4.75VDC, Max : 5.5VDC
9. Analogue ground	
10. External chrominance input	: 0.7Vpp, Max : 1Vpp
11. Analogue ground output buffer	
12. Chrominance output signal	: 0mV, Min : -400mV, (DC offset voltage related to input) Max:+400mV BYPASS-mode:Co/Cext : 0dB, Min : -1dB, Max : +1dB
13. fsc reference selection	: HIGH level input voltage Min : 2V, Max : Vcc : Low level input voltage Min : 0V, Max : 0.8V
14. Luminance output signal	: 1Vpp, Min : 0.6Vpp, Max : 1.54Vpp

15. CVBS and Y output signal	: 1Vpp, Min : 0.6Vpp, Max : 1.54Vpp
16. Internal connected	
17. CVBS and Y input signal	: 1Vpp, Min : 0.7Vpp, Max : 1.4Vpp
18. Disable prefilter	: HIGH level input voltage Min : 2.0VDC, Max : Vcc LOW level input voltage Min : 0VDC, Max : 0.8VDC
19. Storage Capacitor	: 2.5VDC, Min : 1.8VDC, Max : Vcc
20. Standard select 1	: HIGH level input voltage Min : 2.0VDC, Max : Vcc LOW level input voltage Min : 0VDC, Max : 0.8VDC
21. Digital ground	
22. Digital supply voltage	: 5VDC, Min : 4.75VDC, Max : 5.5VDC
23. Standard select 2	: HIGH level input voltage Min : 2.0VDC, Max : Vcc LOW level input voltage Min : 0VDC, Max : 0.8VDC
24. Decoupling capacitor	: 1.25VDC, Min : 1.1VDC, Max : 1.4VDC
25. Controlling I/O pin	: HIGH level input voltage Min : 2.4VDC, Max : Vcc LOW level input voltage Min : 0VDC, Max : 1.5VDC
26. Analogue ground PLL	
27. Analogue supply voltage PLL	: 5VDC, Min : 4.75VDC, Max : 5.5VDC
28. Internal connected	

TDA4605 :

The IC TDA 4605 controls the MOS-power transistor and performs all necessary control and protection functions in free running flyback converters. Because of the fact that a wide load range is achieved, this IC is applicable for consumer as well as industrial power supplies.

The serial circuit and primary winding of the flyback transformer are connected in series to the input voltage. During the switch-on period of the transistor, energy is stored in the tronasformer. During the switch-off period the energy is fed to the load via the secondery winding. By varying switch-on time of the power transistor, the Ic controls each portion of energy transferred to the secondary side such that the output voltage remains nearyl independent of load variations. The required control information is taken from the input voltage during the switch-on period and from a regulation winding during the switch-off period. A vew cycle will start if the trasformer has trasfered the stored energy completely into the load

In the different load renges the switched-mode power supply (SMPS) behaves as follows :

No load operation

The power supply is operating in the burst mode at typical 20 to 40 kHz. The output voltage can be a little bit higher or lower than the nominal value depending of the design of the transformer and the resistors of the control voltage divider.

Nominal operation

The switching frequency is reduced with increasing load and decreasing AC-voltage.
The output voltage is only dependent on the load.

Overload point

Maximal output power is available at this point of the output characteristic.

Overload

The energy trasferred per operation cycle is limited at the top. Therefore the output voltages declines by secondary overloading.

Features:
- Fold-back characteristics provides overload protection for external components.
- Burst operation under secondary short-circuit condition implemented.
- Protection against open or a short of the control loop
- Switch-off if line voltage is too low (undervoltage switch-off)
- Line voltage depending compensation of fold-back point
- Soft-start for quiet start-up without noise generated (thermal shutdown)
- On-chip ringing suppression circuit against parasitic oscillations of the transformer
- AGC-voltage reduction at low load

PINNING
1. Information Input Concerning Secondary Voltage
2. Information Input Regarding the Primary Current
3. Input for Primary Voltage Monitoring
4. Ground
5. Output
6. Supply Voltage Input
7. Input for Soft-Start
8. Input for the Oscillation Feedback

UV1315, UV1316, UV1336

General description of UV1315:

The UV1315 tuner belongs to the UV 1300 familiy of tuners, which are designed to meet a wide range of applications. It is a combined VHF, UHF tuner suitable for CCIR systems B/G, H, L, L', I and I'. The low IF output impedance has been designed for direct drive of a wide variety of SAW filters with sufficient suppression of triple transient.

Features of UV1315:

- Member of the UV1300 family small sized UHF/VHF tuners
- Systems CCIR:B/G, H, L, L', I and I'; OIRT:D/K
- Voltage synthesized tuning (VST)
- Off-air channels, S-cable channels and Hyperband
- Standardized mechanical dimensions and pinning
- Compact size

PINNING	PIN VALUE
1. Gain control voltage (AGC)	: 4.0V, Max:4.5V
2. Tuning voltage	
3. High band switch	: 5V, Min:4.75V, Max:5.5V
4. Mid band switch	: 5V, Min:4.75V, Max:5.5V
5. Low band switch	: 5V, Min:4.75V, Max:5.5V
6. Supply voltage	: 5V, Min:4.75V, Max:5.5V
7. Not connected	
8. Not connected	
9. Not connected	
10. Symmetrical IF output 1	
11. Symmetrical IF output 2	

Bandswitching table:

	Pin 3	Pin 4	Pin 5
Low band	0V	0V	+5V
Mid band	0V	+5V	0V
High band	+5V	0V	0V

General description of UV1316:

The UV1316 tuner belongs to the UV 1300 family of tuners, which are designed to meet a wide range of applications. It is a combined VHF, UHF tuner suitable for CCIR systems B/G, H, L, L', I and I'. The low IF output impedance has been designed
for direct drive of a wide variety of SAW filters with sufficient suppression of triple transient.

Features of UV1316:

- Member of the UV1300 family small sized UHF/VHF tuners
- Systems CCIR: B/G, H, L, L', I and I'; OIRT: D/K
- Digitally controlled (PLL) tuning via IÝC-bus
- Off-air channels, S-cable channels and Hyperband
- World standardized mechanical dimensions and world standard pinning
- Compact size
- Complies to "CENELEC EN55020" and "EN55013"

PINNING	PIN VALUE
1. Gain control voltage (AGC)	: 4.0V, Max:4.5V
2. Tuning voltage	
3. I²C-bus address select	: Max:5.5V
4. I²C-bus serial clock	: Min:-0.3V, Max:5.5V
5. I²C-bus serial data	: Min:-0.3V, Max:5.5V
6. Not connected	
7. PLL supply voltage	: 5.0V, Min:4.75V, Max:5.5V
8. ADC input	
9. Tuner supply voltage	: 33V, Min:30V, Max:35V
10. Symmetrical IF output 1	
11. Symmetrical IF output 2	

General description of UV1336:

UV1336 series is developed for reception of channels broadcast in accordance with the M, N standard. The tuning is available through built-in digitally controlled IÝC bus (PLL).

Features of UV1336:

- Global standard pinning
- Integrated Mixer-Oscillator&PLL function
- Conforms to CISPR 13, FCC and DOC (Canada) regulations
- Low power consumption
- Both Phono connector and 'F' connector are available

PINNING	PIN VALUE
1. Gain control voltage	: 4.0V, Max:4.5V
2. Tuning voltage	
3. Address select	: Max:5.5V
4. Serial clock	: Min:-0.3V, Max:5.5V
5. Serial data	: Min:-0.3V, Max:5.5V
6. Not connected	
7. Supply voltage	: 5.0V, Min:4.75V, Max:5.5V
8. ADC input (optional)	
9. Tuning supply voltage	: 33V, Min:30V, Max:35V
10. Ground	
11. IF output	

SDA 9362 :

General Description:

The SDA 9362 is a highly integrated deflection controller for CTV receivers with doubled line and standard or doubled field frequencies. It controls among others an horizontal driver circuit for a flyback line output stage, a DC coupled vertical sawtooth output stage and an East-West raster correction circuit. All adjustable output parameters are I²C-BUS controlled. Inputs are HSYNC, VSYNC and the line locked clock CLL.

Features:

- I²C-Bus alignment of all deflection parameters
- All EW- , V- and H- functions
- PW EHT compensations
- PH EHT compensations
- Compensation of H-phase deviation (e.g. caused by white bar)
- Upper / lover EW-corner correction separately adjustable
- V-angle correction : Vertical frequent linear modulation of H-phase
- V-bow correction : Vertical frequent parabolic modulation of H-phase
- There reduced V-scan modes (75%, 66%, 50% V-size) selectable
- H-and V-blanking time adjustable
- Partial overscan adjustable to hide the cut off control measuring lines in the reduced scan modes
- Stop / start of vertical deflection adjustable to fill out the 16/9 screen with different letterbox formats without annoying overscan
- Dynamic PH EHT-compensation (white bar)
- Self adaptation of V-frequency / number of lines per field between 192 and 680 for each possible line frequency
- Protection againt EHT run away (X-rays protection)
- Protection againt missing V-deflection (CRT-protection)
- Two digital outputs for general purpose, controlled by I²C-Bus
- Selectable softsart of the H-output stage
- P-MQFP-44 package
- 5 V supply voltage

PINNING

1. Clock inputs
2. Reference oscillator input, Crystal
3. Reference oscillator input, Crystal
4. I²C-Bus data
5. I²C-Bus clock
6. H-sync input
7. Vertical blanking output
8. Blanking signal with H-and color burst component (V-component selectable by I²C-Bus)
9. Digital supply
10. Digital ground

11. Watching external V-output stage (Input is the V-sawtooth from feedback resistor)
12. Watching EHT (input is e.g. H-flyback)
13. Analog supply
14. Output of an I²C-Bus controled switch (registor 00, bit D5)
15. Input for a beam current dependent signal for stabilization of width, height and H-phase
16. Analog ground
17. Reference voltage for IBEAM ADC, HPROT / VPROD theeshholds
18. Like VREFN
19. Analog supply
20. Control signal output for East-West raster correction
21. Control signal outout for DC coupled V-output stage
22. Like VD+
23. Analog ground
24. Reference voltages for E / W-DAC, V-DAC
25. Like VREFL
26. Line flyback for H-delay compensation
27. Output of an I²C-Bus controlled switch (register 00, bit D3)
28. V-sync input
29. Control signal output for H driver stage
30. Switching normal operation (TEST=l) and test mode (TEST=H; pin 34 isa an additional test pin)
31. Test pin, to be grounded
32. Test pin, to be grounded
33. Defines the default value of HDE
34. Disables soft start (H)
35. Test pin, to be grounded
36. Test pin, don't connect
37. Test pin, don't connect
38. Digital supply
39. Digital ground
40. Test pin, don't connect
41. Analog ground
42. PLL loop filter
43. Analog supply
44. Reset input. active Low

MSP3410D

General Description:

The MSP3410D is designed as a single-chip Multistandard Sound Procwssor for aplications in analog and digital TV sets, satellite receivers, video recorders, and PC-cards. As the successor of the MSP3410B and MSP3410C, the MSP 3410D combines all features of the two and adds several newfeatures.

The MSP 3410D, again, improves function integration : The full TV sound prosessing, starting with analog sound IF signal-in, down to processed analog AF-out, is performed in a single chip. It covers all European TV-Standards.

The IC is produced in submicron CMOS technology, combined with high performance digital signal processing. The MSP3410D is available in PLCC68, PSDIP64, and in PSDIP52 package.

Features:

- 5-band graphic equalizer (as in MSP3400C)
- Enhanced spatial affect (pseudostereo/basewidth enlargement as in MSP3400C)
- Headphone channel with balance, bass treble, loudness
- Balance for laudspeaker and headphone channels in dB units (optional)
- Additional pair of D/A converters for SCART2 out
- improved oversampling filters (as in MSP 3400C)
- Additional SCART input
- Full SCART in/out matrix without restrictions
- Scart volume in dB units (optional)
- Additional I²S input (as in MSP 3400C)
- New FM-identification (as in MSP 3400C)
- Demodulator short programming
- Autodetection for terrestrial TV-sound standards
- Precise bit-error rate indication
- Automatic switch from NICAM to FM/AM or vice versa
- Improved NICAM synchronization algorithm
- Improved carrier mute algorithm
- Improved AM-demodubation
- ADR together with DRP 3510A
- Dolby Pro Logic together with DPL 35xx A
- Reduction of necassary controlling
- Less extemal components

- Significant reduction of radiation

PINNING

1. ADR wordsttrobe
2. Not connected
3. ADR data output
4. I²S 1 data input
5. I²S data output
6. I²S wordstrobe
7. I²S clock
8. I²S data
9. I²S clock
10. Not connected
11. Standby (low-active)
12. I²C Bus address select
13. Digital control output 0
14. Digital control output 1
15. Not connected
16. Not connected
17. Not connected
18. dio clock output
19. Not connected
20. Crystal oscillator
21. Crystal oscillator
22. Test Pin
23. IF input 2 (if ANA_IN1+is used only, connect to AVSS with 50 pF capacitor)
24. IF common
25. IF input 1
26. Analog power supply +5V
27. Analog ground
28. Mono input
29. Reference voltage IF A/D converter
30. Scart input 1 in, right
31. Scart input 1 in, left
32. Analog Shield Ground 2
33. Scart input 2 in, right
34. Scart input 2 in, left
35. Analog Sield Ground 1
36. Scart input 3 in right
37. Scart input 3 in left
38. Analog Shield Ground 4
39. Scart input 4 in, right
40. Scart input 4 in, left
41. Not connected
42. Analog reference voltage high voltage part
43. Analog ground
44. Volume capacitor MAIN
45. Analog power supply 8.0V
46. Volume capacitor AUX
47. Scart output 1, left
48. Scart output 1, right
49. Reference ground 1 high voltage part
50. Scart output 2, left
51. Scart output 2, right
52. Analog Shield Ground 3
53. Not connected
54. Not connected
55. Not connected
56. Analog output MAIN, left
57. Analog output MAIN, right
58. Reference ground 2 high voltage part
59. Analog output AUX, left
60. Analog output AUX, right
61. Power-on-reset
62. Not connected
63. Not connected
64. Not connected
65. I²S2-data input
66. Digital ground
67. Digital power supply +5V
68. ADR clock

TMS37600

General Description:

The main function of the TEA6415 is to switch 8 video input sources on the 6 outputs.
Each output can be switched to only one of the inputs whereas but any same input may be connected to several outputs.
All switching possibilities are controlled through the I²C-bus.

Features:

- 20 MHz Bandwith

TEA6415:

General Description:

The main function of the TEA6415 is to switch 8 video input sources on the 6 outputs.
Each output can be switched to only one of the inputs whereas but any same input may be connected to several outputs.
All switching possibilities are controlled through the I²C-bus.

Features:

- 20 MHz Bandwith
- Cascadable with another TEA6415C (Internal address can be changed by pin 7 voltage)
- 8 inputs (CVBS, RGB, Mac, CHROMA, ...)
- 6 Outputs
- Possibility of MAC or chroma signal for each input by switching-off the clamp with an external resistor bridge
- Bus controlled
- 6.5dB gain between any input and output
- -55dB crosstaljk at 5MHz
- Fully ESD protected

PINNING	PIN VALUE				
1. Input	: Max	: 2Vpp, Input Current	: 1mA,	Max	: 3mA
2. Data	: Low level	: -0.3V Max:1.5V, High level	: 3.0V	Max	: Vcc+0.5V
3. Input	: Max	: 2Vpp, Input Current	: 1mA,	Max	: 3mA
4. Clock	: Low level	: -0.3V Max:1.5V, High level	: 3.0V	Max	: Vcc+0.5V
5. Input	: Max	: 2Vpp, Input Current	: 1mA,	Max	: 3mA
6. Input	: Max	: 2Vpp, Input Current	: 1mA,	Max	: 3mA
7. Prog					
8. Input	: Max	: 2Vpp, Input Current	: 1mA,	Max	: 3mA
9. Vcc	: 12V				
10. Input	: Max	: 2Vpp, Input Current	: 1mA,	Max	: 3mA
11. Input	: Max	: 2Vpp, Input Current	: 1mA,	Max	: 3mA
12. Ground					
13. Output	: 5.5Vpp,	Min : 4.5Vpp			
14. Output	: 5.5Vpp,	Min : 4.5Vpp			
15. Output	: 5.5Vpp,	Min : 4.5Vpp			
16. Output	: 5.5Vpp,	Min : 4.5Vpp			
17. Output	: 5.5Vpp,	Min : 4.5Vpp			
18. Output	: 5.5Vpp,	Min : 4.5Vpp			
19. Ground					
20. Input	: Max : 2Vpp, Input Current		: 1mA,	Max	: 3mA

TEA 6420

General Description:

The TEA 6420 switches 5 stereo audio inputs on 4 stereo outputs.
All the switchingh possibilities are changen through the I²C-bus.

Features:

- 5 Stereo inputs
- 4 Stereo outputs
- Gain control 0/2/4/6dB mute for each output
- Cascadable (2 different addresses)
- Serial bus controlled
- Very low noise
- Very low distorsion

TDA1308

Features:

- Wide temperature range
- No switch ON/OFF clicks
- Excellent power supply ripple rejection
- Low power consumption
- Short-circuit resistant
- High performance
  - high signal-to-noise ratio
  - high slew rate
  - low distortion
- Large output voltage swing

PINNING	PIN VALUE
1. Output A (Voltage swing)	: Min : 0.75V, Max : 4.25V
2. Inverting input A	: Vo(clip) : Min : 1400mVrms
3. Non-inverting input A	: 2.5V
4. Ground	: 0V
5. Non-inverting input B	: 2.5V
6. Inverting input B	: Vo(clip) : Min : 1400mVrms
7. Output B (Voltage swing)	: Min : 0.75V, Max : 4.25V
8. Positive supply	: 5V, Min : 3.0V, Max : 7.0V

TDA6111Q

General Description:

The TDA6111Q is a video output amplifier with 16MHz bandwidth. The device is contained in a single in-line 9-pin medium power (DBS9MPF) package, using high-voltage DMOS technology, intended to drive the cathode of a colour CRT.

Features:

- High bandwidth and slew rate
- Black-current measurement output for Automatic Black-current Stabilization (ABS)
- Two cathode outputs; one for DC currents, and one for transient currents
- A feedback output seperated from the cathode outputs
- Internal protection against positive appearing Cathode-Ray Tube (CRT) flashover discharges
- ESD protection
- Simple application with a variety of colour decoders
- Differention input with a designed maximum common mode input capacitance of 3 pF, a maximum differential mode input capacitance of 0.5 pF and a differential input voltage temparature drift of 50 uV/K
- Defined switch-off behaviour.

PINNING

1. Non-inverting voltage input
2. Supply voltage LOW
3. Inverting voltage input
4. Ground, substrate
5. Black current measurement output
6. Supply voltage HIGH
7. Cathode transient voltage output
8. Cathode CD voltage output
9. Feedback voltage output

TDA8351

General Description:

The TDA8351 is a power circuit for use in 90° and 110° colour deflection systems for field frequencies of 50 to 120Hz. The circuit provides a DC driven vertical deflection output circuit, operating as a highly efficient class G system.

Features:

- Few external components
- Highly afficient fully DC-coupled vertical output bridge circuit
- Vertical flyback switch
- Protection againts :
  - Short-circuit of the output pins (7 and 4)
  - Short-circuit of the output pin to Vp
- Temperature (thermal) protection
- High EMC immunity because of common mode inputs
- A guard signal in zoom mode.

PINNING

1. Input power-stage (positive); includes $I_{I(sb)}$ signal bias
2. Input power-stage (negative); includes $I_{I(sb)}$ signal bias
3. operating supply voltage
4. Output voltage B
5. Ground
6. Input flyback supply voltage
7. Output voltage A
8. Guard output voltage
9. Input feedback voltage

TDA9143

General Description:

The TDA9143 is an I²C-bus controlled, allgnment-free PAL/NTSC/SECAM decoder/sync processor with blanking facilities for PAL plus and EDTV-2 signals. The TDA 9143 has been designed for use with baseband chrominance delay lines, and has a combined subcarrier frequency/comb filter enable signal for communnication with a PAL/NTSC comb filter.

The IC can process both CVBS input signals and Y/C input signals. The input signal is avalible on an output pin, in the event of a Y/C signal, It is added into a CVBS signa

TDA 4780

General Description:

Video signal prosesor TDA4780 contains a PAL/SECAM and NTSC matrix, a fast signal source switch, and saturation, contrast and brightness adjust stages. The processed video signal is either one of the two RGB input signals or the luminance and colour-difference signals. The latter are matrixed to RGB colour signals before they are fed to the signal sourch switch. Thus there RGB input signal sets are supplied to the fast signal source switch. The selected RGB signal set passes the fast switch and can be gamma-and or adaptive black level processed before it subjects saturation-, contrast- and brightness control. These RGB colour signals are finally fed through the feadback-controlled cut-off adjust stages into the video output stages.

The luminance and colour-difference signals, Y, -(R-Y) and -(b-y) are fed to pins 8,7 and 6 respectively, External RGB signals are fed to pins 10-12 for analog signals and 2-4 for On screen Display, fast switching signals FSW1 on pin 13 and FSW2 on pin 1 enable the required external RGB source to be selected externally. There are two blanking circuits in the video signal path, the first inserts a common artificial black level, the second inserts the measurement pulses which are stimuli for the cut-off feedback control loop. The RGB colour signals after adjustment in the cut-off feeedback control are fed out of the TSA4780 on pint 24, 22 and 20.

The TDA4780 is also equipped with average and peak beam current limiting circuits. Both these limiting circuits are used to reduce the contrast and , ifthis is insufficient, to reduce the brightness. A voltage proportional to the avarage beam current is fed to the TDA4780, pin 15. To limit the peak beam current, the three RGB outputs are compared with heir nominal peak value programmed in the TDA4780 via the IIC-bus. The control voltage for contrast and brightness reduction is stored in the capacitor at pin 16 for a complete field until the RGB output voltages are measured again.

Automatic cut-off is based on the comparison of the nominal (programmed) and actual (measured) cathode currents. The nominal cathode currents are represented by the reference level voltages inside the TDA4780. The actual cathode currents are measured as voltages they are generate across an external resistor. This measurement resistor is connected to pin 19. It is used for cut-off and leakage current measurements.

The picture tube leakage current is measured during one complete line after the vertical blanking interval of the sandcastle signal by means of an analog control loop. The voltage of pin 19 is controlled by a comparator. It charges the capacytor on pin 17 to a voltage determined by the magnitube of the leakage current. The stored voltage of the capacytor drives a current generator to compensate for leakage current during cut-off measurement. Thus, the voltages drop of the measurement resistor at pin 19 is always 2.7V during the leakage measurement internal.

Features:

- Pin compatible expect pin 18
- Y input for 315mV or 1V VB signal selectable via IIC-bus
- Two different matrixes for PAL, SECAM / NTSC (Japan type) selectable via IIC-bus
- Luminance output for scan velocty modulation
- Adaptive black level control
- Gamma adjustment
- Blue stretch

TDA7264 :

General Description:

The TDA7264 is class AB dual Audyo power amplyfier assembied in the Multiwatt package, specially designed for high quality sound application as Hi-Fi music centers and stereo TV sets.

Features:

- Wide supply voltage renge (up to 50V ABS Max.)
- Split supply
- High output power : 25+25W @ TDA = 10%, R_L = 8ohm, Vs = ±20V
- No pop at turn-on / off
- Mute (pop free)
- Stand-By feature (low Io)
- Few external components
- Thermal overload protection

PINNING

1. Output (1)
2. +Vs
3. Output (2)
4. Mute / St-By
5. -Vs
6. Input (2)
7. Ground
8. Input (1)

SDA 5273

General description:

Single Chip Teletext IC

The MEGATEXT combines all teletext processing blocks (including data slicer, clock generators, acquisition circuits, and display generator), page memory , and several discrate external components into one IC.

Analog CVBS-Input with On-Chip Clamping Circuit

The MEGATEXT IC accepts analog CVBS-signals for decoding teletext information.

Analog RGB-Output

The MEGATEXT IC delivers analog RGB-output signals with an maximum amplitube of 2V peak to peak. The contrast/ brightness of the analog RGB-output signal can be controlled by software in 32/8 linear steps without decreasing the amplitube resolution.

I²C-Bus or 3-wire USART-Interface

The MEGATEXT can be controlled by an external controller either via I²C-Bus (2 wires) or M3L-Bus (USART, 2 + 1 wires). The M3L-Bus increases the maximum data rate up to 1 Mbit / s and is thus 10 times faster than the I²C-Bus in standard mode.

Two Independent Clock Systems for Acquisition and displayer :

Two independent clock systems anable a complete saperation of acquisition and display functions. This is escpecially useful for a stable text display with unstable CVBS-sources or in flicker-free television sets where acquisition and display may have different time bases.

User-Programmable On-Chip Processing Unit:

In application where the hard-wired basic functions of the internal processing unit do not fit the spbecial demands of the customer, additional subrountines may be down loaded to the internal DRAM of the MEGATEXT. In this way, new standards and functions may be implemented in shortest time without hardware modification.

Features:

- Single-chip IC for teletext, VPS, PDC, telecaption and OSD
- Analog CVBS-input with on-chip clamping circuit
- Analog RGB-output
- I²C Bus or 3-wire USART-interface (1 Mbit/s)
- Two independent clock systems for acquisition and display
- User programmable on chip processing unit
- Tools available which greatly simplify softwere development

SDA 30C264

General description:

The SDA30C26x family, a derivative of the SAB C501, is a member of mamily of single-chip computers, in which the emphasis is no longer placed on purely numeric computational performance, but on aplication-specific controller functions.

Architecture and insruction set are based upon that of the 8051 microcomputer. Like the 8051 has many features which increase programming ease; extended internal data memory-space, variable manipulation in internal data memory, free stack location in data RAM, 4 register banks, special function registers, memory mapped I/O, individually addressable bits and a Boolean processor give the programmer the ability to improve the power of software development. Numerical problems can be processed with binary as well as with BCD-arithmetic. The many bit handling instructions also contribute to the computer's afficiency as a controller, Extended memory is controlled by an 8-bit dataand a (16+3)-bit address bus without any additional devices such as latches or logic elements, even when all 512K of the program address space is used. All this leads, in suitable applications, to a reduction in the peripheral hardware and to a simplification of the software and thus to reduced development and component costs. The controller, specially developed for entertainment electronic applications, can also be recommended where both lowest component costs and a large production volume are prime requirements.

The SDA 30C36x family members contain a 1024 + 256-byte or a 2048 + 256-byte data memory (XRAM + RAM), two independent 16-bit timers /-coumters and a seven-source, four-priority-level, nested interrupt structure, on-chip oscillator and clock circuits. The 30 digital I/O-lines include four 8-bit ports (P1 and P3 contain I/O-lines with multifunction options) and one 2-bit port. One or two serial interfaces are included, one bahaves like the 8051 UART, the other is a I²C Bus interface (SDA 30C264 only)

The second multifunction port consists of port P1, which alternatively can be used as up to eight independent pulse width modulated output channels(PWM). Controlled via special function registers, the PWM-circuitry provides flexibility in time resolution and system configuration.

Specially the realization of D/A-outputs using pulse width modulation will be a cost saving advantage in analog applications.

The internal ADC is a 8-bit, four channel converter. The input channels are P20 to P23, the analog supply are pins V_{DDA} and V_{SSA}. A flexible overvoltage / undervoltage detector is included (SDA 30C264 only).

Port 4 can be used as a standard port or as memory extension address bits.

Increased system reliabilty can be achieved by activating the integrated watchdog timer.

Efficiend use of program memory results from an instruction set consisting of 49 single-byte, 46 two-byte and 16 three-byte instructions. Using an internal clock frequency of 12 MHz, 64 instructions execute in 0.5 us and 45b instructions execute in 1.0us. The remaining instructions (multiple and devide) require only 2us. The number of bytes in each instruction and the number of oscillator periods required for execution are listed in the instruction

Based on the SDA 30C163 and similar to the SDA 30C164, the SDA 30C26x comprise double stack size for the extension memory (32 byte) and seven additional data pointer registers.

The SDA 30C263 is a reduced versionof the SDA 30C264. The SDA 30C264 is functionally compatible to the SDA 30C164, but uses a different package and a different Reset input stage (P-MQFP-80-1 instead of P-LCC-84). If using the P-MQFP-64-1 Package, some I/O-features are not available.

Features:

- **SAB 8051 Architecture**
  - On-chip oscillator and clock circuits
  - Binary or decimal arithmatic
  - Signal-overflow detection and parity computation
  - Integrated Boolean processor for control applications
  - Full depth stack for subroutine return linkage and data storage
  - Four priority level, nested interrupt structure
  - 0.5us instruction cycle at 12 MHz internal clock rate
  - 8 data pointer registers
- **Serial interface**
  - Full duplex UART-interface
  - I²C compatible interface (SDA 30C264 only)
- **On-Chip RAM**
  - Direct byte and bit addressability
  - Four register banks
  - 256 bytes of data memory, including 128 user-defined software flags
  - 2048 bytes of data memoty accessible with MOVX-instructions (SDA 30C263; 1024 bytes)
- **External Program Memory Interface**
  - 512 Kbtes of program memory may be addressed by a 8-bit data bus and a 16 + 3-bit address bus
  - Extension stack depth 32 byte
- **30 Bidirectional I/O-Lines**
  - Two 8-bit ports, one comprising up to eight programmable D/A-outputs
  - One 4-bit input port, also used for analog input
  - One 8-bit port with open drain output
  - One 2-bit port with optional memory extension function
- **Pulse Width Modulation Unit**
  - Up to eight programmable PWM-output channels for low cost digital-to analog conversion
- **Timers**
  - Two 16-bit general popose timer/event counters
  - Watchlog timer
- **Analog-to-Digital Converter**
  - Four multiplexed input channels with 8-bit resolution
  - Overvoltage/Undervoltage Detector with interrupt capability (SDA 30C264 only)

TDA 4665

General description:

The TDA 4665 is an integrated baseband deley line circuit. It provides a deley of 64us for the colour difference signals. (R-Y) and (B-Y), in multi-standard TVs.The colour difference signals are AC-coupled to pins 16 to 14 respectively and clamped at the input stages. The signals are then fed via buffers to the delay line circuit. The delay line circuit is driven by a 3MHz internal clock which enables the circuit to produce the required delay of 64us.

The outputs from the delay line circuit are fed through sample-and-hold low-pass filters to suppress the clock signal. The delayed and non-delayed are than added and fed to the output pins, 11 and 12, via buffers.

The internal clock is derived from a 6MHz voltage controlled oscillator (VCO) which is line-locked via a PLL to the sandcastle pulse at pin 5.

Features :

- Two comp filters using the switched-capacitor technique, for one line delay time. (64us)
- Adjustment-free application.
- No crosstalk between SECAM colour carriers.
- Handles negative or positive colour-difference input signals.
- Clamping of AC-coupled input singlas (±(R-Y) and ±(R-Y))
- VCO without external components
- 3 MHz internal clock signal derived from a 6MHz VCO, line-locked by the sandcastle pulse (64us line)
- Sample-and-hold circuits and low-pass filters to suppress the 3 MHz clock signal
- Addition of delayet and non-delayet output signals
- Output buffer amplifiers
- Comp filtering functions for NTSC colour-difference signals to suppress cross-colour.

HYB 514400BJ

General description:

The HYB 514400BJ / BJL is the new generation dynamic RAM organized as 1 048 576 words by 4-bit.
The HYB 514400BJ / BJL utilites CMOS silicon gate process as well as advances circuit techniques to provide wide operation margins, both internallty and for the system user. Multiplexed addess inputs permit the HYB 514400BJ/BJL to be packed in a standard plastic P-SOJ-26/20 package. This package size provides high system bit densitied and is compatible with commonly used automatic testing and insertion equipment. System oriented features include single +5V (± 10 %) power supply, direct interfacing with high performance logic device families such as Schottky TTL.

Features :

- 1 048 576 words by 4-bit organization
- 0 to 70 °C operating temperature
- Fast Page Mode Operation'
- Single +5V (± 10 %) supply with a built-in V_{BB} generator
- Low power dissipation
  maz. 660 Mw active (-50 version)
  maz. 605 Mw active (-60 version)
  maz. 550 Mw active (-70 version)
- Standby power dissipation
  11 mW max. standby (TTL)
  5.5 mW max. standby (CMOS)
  1.1 mW max. standby (CMOS) for low Power Version
- Output unlatched at cycle and allows two-dimensional chip selection
- Read, write, read-modify write, CAS-before-RAS refresh, RAS-only refresh, hidden refresh and test mode capability
- All inputs and outputs TTL-compatible
- 1024 refresh cycles / 16 ms
- 1024 refresh cycles / 128 ms Low Power Version only
- Plastich Packages: P-SOJ-26/20-5 with 300 mil width

ST27C2001

General description:

The ST27C020 SERIES ARE 2097 152-BIT ULTRAVIOLENT -LIGTH ERASABLE ALECT programmle read-only memories.

This deviceis fabricadeet usind power-saving CMOS technology for high speed andsimpie interface with MOS and bipolar circuits. All inputs(including program data inputs) can be driven by series74TTLcircult witbout external resistors The TMS 27C020 EPROM is offered in a doal-in-line caramic package (J suffix) desigred for insertion in mounting hole rows on 15.2-mm (600-mil)centers.The TMS27C020 is also offered with two cholces of temperature ranges of 0 to 70C and -40C to 85C (TMS27C020--JLand and TMS27C020 --JE ,repectively)The TMS27C020 is also offerend with 168 hour burn -in on buth temparature ranges (TMS27C020 --JL4and TMS27C020--JE 4,respectively .).

Features:

- Organizatlon ...256K x 8
- Single 5-Vpover supply
- Operationally Compatibl With Existing Megabit EPROMs
- Industry Standart 32-pinDual-in-line Package
- All inputs/Outputs Fully TTL Compatlble
- Max Access/Min Cycly Time
- 8-Bit Output For Use In Microprocessor-Based Systems
- Power Saving CMOS Technology
- 3-State Output Buffers
- 400 mV Minumum DC Noise Immunity With Standard TTI Loads
- Latchup Immunity of 250 mA on All input and Output pins
- No pullup resistors required
- Low power dissipation (Vcc = 5.5V)
  - Active 165 mW Worst case
  - Standby 0.55 mW Worst case (CMOS-Input levels)

AK18 CHASSIS MANUAL ADJUSTMENTS PROCEDURE

A) PRELIMINARY

Before starting with the alignment procedure, make sure that all the potentiometers on the chassis and also screen and focus pots are in the medium position.

B) SYSTEM VOLTAGE ADJUSTMENT

Inputs - AC power (220V 50 Hz).
- PAL B/G test pattern via RF
(PAL I test pattern for PAL I TV's, SECAM D/K pattern, SECAM L/L'/K' TV's).

Outputs - Digital voltmeter to one of the pins of L809 on 11PW18 board.

Display - System voltage

Action - Apply power. Check that The stand-by led lights.
- Select TV mode and tune to the applied test pattern via local test keyboard.
Chassis should start normally.
- Adjust all analogue controls (volume, bass, treble, brightness, contrast, colour) to minimum settings.
- Adjust VR800 on 11PW18 board according to the following different types of CRT's

SYSTEM VOLTAGE	TYPE OF CRT
148V±0.5V	PHILIPS A66EAK552X54
148V±0.5V	PHILIPS A66EAK071X54
140V±0.5V	VIDEOCOLOR A66ECY13X12
148V±0.5V	PHILIPS W66ESF002X44

C) AFC ADJUSTMENT

Inputs - AC power.
- 38.9 MHz test pattern for PAL B/G, PAL-SECAM B/G or 39.5 MHz test pattern for PAL I model (90dBmV) to Z203 SAW filter input terminals 1 and 2.

Outputs - Digital Voltmeter to 10th pin of PL201 on the 11IF18 board.

Display - AFC Voltage.

Action - Adjust VL201 for 2.5±0.1 Volts. TV should automatically tune to a station when search tuning is activated.

D) FOCUS ADJUSTMENT

Inputs - AC power
- PAL B/G test pattern via RF input.

Outputs - Picture tube drive.

Display - Picture

Action - Select TV mode and tune to the signal.
- Adjust focus potentiometer (the upper pot on the rear side of the FBT transformer) for optimum focusing.drive.

E) SCREEN ADJUSTMENT

Inputs - AC power
- PAL B/G Colour Bar test pattern via RF

Outputs - 1/100 Oscilloscope probe to RGB cathodes on CRT baseboard.
NOTE:Ground pin of probe will be connected to 1st pin (GND) of CRT901 on the CRT baseboard.

Display - RGB ratio

Action - Select PAL B/G Colour Bar pattern using the local test keyboard and the user remote control unit.
- Adjust all control functions (brightness, colour and contrast) to minimum settings.
- Measure screen port of CRT901 (Pin 4 on 11TP18 board)
- Adjust the screen potentiometer (lower pot on the rear side of FBT transformer) such that 800V DC.

F) IF ADJUSTMENT FOR L' MODE

Inputs - AC power.
- 38.9 MHz test pattern for PAL B/G, PAL-SECAM B/G or 39.5 MHz test pattern for PAL I model (90dBmV) to Z203 SAW filter input terminals 1 and 2.

Outputs - Digital Voltmeter to 10th pin of PL201 on the 11IF18 board.
- Digital Voltmeter to 14th pin of IC201 on the 11IF18 board.

Display - AFC Voltage.

Action - Firstly adjust VL201 for 2.5 ± 0.1 Volts. TV should automatically tune to a station. when search tuning is activated
- Adjust VR201 for 2.5±0.1 Volts at the 14th pin of IC201 (11IF18).

11PIP18 AGC ALIGNMENT PROCEDURE

AGC ADJUSTMENT

Inputs - AC power
- Colour Bar signal, VHF-3 Channel-12 and 60dBmV RF signal level.

Outputs - Digital Voltmeter to AGC test point on the module 11PIP18
- Picture tube drive.

Display - AGC voltage on Voltmeter.
- Picture.

Action - Select TV mode and tune to VHF-3 Channel-12 signal.
- Turn preset VR750 until AGC voltage reaches its maximum level
- Turn preset VR750 clockwise and check that meter is 1Volt below.
- Check that picture is normal at 90dBmV signal level.

11SAT18 VIDEO LEVEL ALIGNMENT PROCEDURE

VIDEO LEVEL ADJUSTMENT

Inputs - AC power
- Colour Bar signal

Outputs - 1/1 Oscilloscope probe to VIDEO test point on the module 11SAT18

Display - Peak-to-peak video signal level
- Picture.

Action - Select SAT mode and tune to colour bar satellite signal.
- Connect oscilloscope probe to test point (jumper) J105.
- Turn preset VR101 so that video level is 650mV + 20 mV peak-to-peak.
- Check that picture is normal

AK18 CHASSIS PRODUCTION MODE ADJUSTMENTS PROCEDURE

A) PRELIMINARY

All system, geometry and white balance alignments are performed in production service mode. Before starting the production mode alignments, make sure that all manual alignments are done correctly. To start production mode alignments enter the MAIN MENU and enter the code **1675** by pressing digit keys. Production mode items will appear on the screen. Production mode groups will be displayed with different colours of headlines , so in order to access a production alignment group press the colour key of the related group on the remote control transmitter. After selecting one of the production service mode groups, you can access its items by pressing the cursor-up and/or cursor-down keys. You can change the value of an item by pressing cursor-left and/or cursor-right keys on the remote control transmitter.
In order to switch between other group of items press the colour key of this groups headline.
To store the settings press OK key. In order to leave this menu press MENU key.

B) HORIZONTAL AND VERTICAL GEOMETRY ALIGNMENTS

- Switch the program to crosshatch test pattern (C2 in internal transmission system)
- Press RED key to access this group of item
- Select the items by pressing cursor-up and/or cursor-down keys.
- Adjust the item by pressing cursor-left and/or cursor-right after selecting that item.
- Store the settings by pressing OK key
- Switch to another item group by pressing the colour keys of the related coloured headline of that group
- Exit production mode by pressing the MENU key on the remote transmitter.

1) V-SHIFT

- Press cursor-left and/or cursor-right buttons till the test pattern is vertically centred, i.e. horizontal line at the centre of the test pattern is in equal distance both to upper and lower side of the picture tube. Check and readjust V-SHIFT item if the adjustment becomes improper after some other geometric adjustments are done

2) V-SIZE

- Press cursor-left and/or cursor-right buttons till horizontal black lines on both the upper and lower part of the test pattern become very close to the upper and lower horizontal sides of picture tube and nearly about to disappear. Check and readjust V-SIZE item if the adjustment becomes improper after some other geometric adjustments are done.

3) H-SHIFT

- Adjust H-SHIFT item by pressing cursor-left and/or cursor-right buttons till test pattern is horizontally in equal distance both to right and left sides of the picture tube. Check and readjust H-SHIFT item if the adjustment becomes improper after some other geometric adjustments are done.

4) H-SIZE
- Adjust H-WIDTH item by pressing cursor-left and/or cursor-right buttons till no under-scan condition will happen, i.e. no white bars on the left and right side of the test pattern will be visible nor the picture will be so wide. Check and readjust H-WIDTH item if the adjustment becomes improper after some other geometric adjustments are done.

5) S-COR
- Press cursor-left and/or cursor-right buttons till the size of squares on both the upper and lower part of test pattern become equal to the squares laying on the vertical centre of the test pattern. Check and readjust S-COR item if the adjustment becomes improper after some other geometric adjustments are done.

6) LINRT
- Press cursor-left and/or cursor-right buttons till all the size of squares of the test pattern become in equal size from the top of the screen to its bottom of the whole screen. Check and readjust LINRT item if the adjustment becomes improper after some other geometric adjustments (especially after than S-COR adjustment are done.

7) ANGLE
- Press cursor-left and/or cursor-right buttons till the vertical lines of the crosshatch pattern become completely perpendicular to horizontal lines without any angle of vertical deviation. Check and readjust ANGLE item if the adjustment becomes improper after some other geometric adjustments are done.

8) BOW
- Press cursor-left and/or cursor-right buttons till the vertical lines especially ones close to the left and right sides will of equal and symmetrical bending, i.e. they together will neither be towards left side nor right side. Check and readjust BOW item if the adjustment becomes improper after some other geometric adjustments are done.

9) TRPEZ
- Press cursor-left and/or cursor-right buttons till vertical lines, especially lines at the sides of the picture frame became parallel to the both sides of picture tube as close as possible. Check and readjust TRPEZ item if the adjustment becomes improper after some other geometric adjustments are done.

10) PARAB
- Press cursor-left and/or cursor-right buttons till vertical lines close to the both sides of the picture frame become parallel to vertical sides of picture tube without any bending to left or to right side of the screen.. Check and readjust PARAB Item if the adjustment becomes improper after some other geometric adjustments are done.

11) U. COR
- Press cursor-left and/or cursor-right buttons till vertical lines at the upper corners of the picture frame become vertical and parallel to vertical corner sides of picture tube. Check and readjust U. COR item if the adjustment becomes improper after some other geometric adjustments are done.

12) L. COR
- Press cursor-left and/or cursor-right buttons till vertical lines at the lower corners of the picture frame become vertical and parallel to vertical corner sides of picture tube. Check and readjust L. COR item if the adjustment becomes improper after some other geometric adjustments are done.

C) VIDEO ALIGNMENTS
- Switch the program to crosshatch test pattern (C2 in internal transmission system) for geometric adjustments
- Switch the program to colour bar test pattern (S37 in internal transmission system) for video adjustments
- Press GREEN key to access this group of item
- Select the items by pressing cursor-up and/or cursor-down keys.
- Adjust the item by pressing cursor-left and/or cursor-right after selecting that item.
- Store the settings by pressing OK key
- Switch to another item group by pressing the colour keys of the related coloured headline of that group
- Exit production mode by pressing the MENU key on the remote transmitter.

1) RGn, GGn, BGn: WHITE BALANCE ADJUSTMENT
- Apply WHITE test pattern via RF (C21 in internal transmission system)
Adjust all analogue functions to medium level
Use Colour analyser (Phillips PM5639)
Monitor the colour temperature (X, Y) on colour analyser.
Set GGn at value 32 (constant).
Select RGn and BGn by cursor-up and/or cursor-down buttons and change the values by cursor-left and/or cursor-right buttons till the following values are read:

X=285±10
Y=293±10 on the colour analyser.

2) RRf, GRf, BRf
- Set the values of these items as 32 (constant).

3) YDF
- This item is controlled by FEATURE BOX (11FB18)
Apply COLOUR BAR test pattern (S37 in internal transmission system)
Select YDF item cursor-up and/or cursor-down buttons.
Adjust YDF by pressing cursor-left and/or cursor-right buttons till the colour transients on the colour bar pattern becomes as sharper and possible as colours between transients do not mix with each other. Check and readjust YDF item if the adjustment becomes improper after YDV adjustment is done.

4) YDV
- This item is controlled by TDA9143 (11MB18)
Apply COLOUR BAR test pattern (S37 in internal transmission system)
Select YDV Item cursor-up and/or cursor-down buttons.
Adjust YDV by pressing cursor-left and/or cursor-right buttons till the colour transients on the colour bar pattern becomes as sharper and possible as colours between transients do not mix with each other. Check and readjust YDV item if the adjustment becomes improper after YDF adjustment is done.

5) AGC
- Apply PAL BG signal, VHF-3 Channel-12 and 60dBmV RF signal level.
Adjust AGC item till voltage at pin9 of PL202 (11IF18) till you read 3.0 volts.

6) TLAN
- This item and its settings will be defined later.

7) APS
- This value of this item toggles between ON and OFF while pressing the cursor-left and cursor-right after this item is selected by cursor-up and/or cursor-down buttons.
In order to activate APS installation procedure whenever TV is turned select ON for the very first time.
In order to start TV without APS installation procedure select OFF.

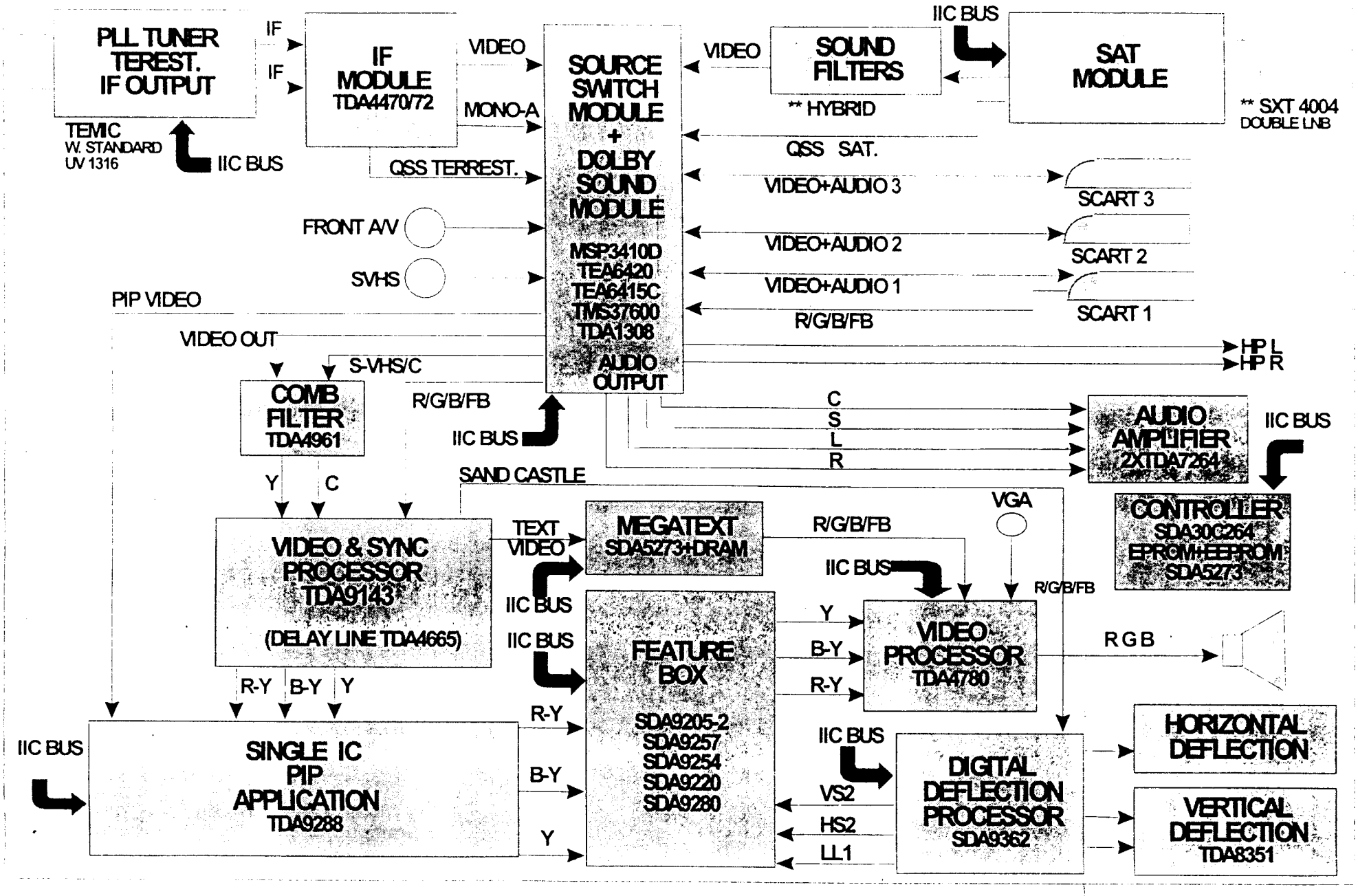
4) SERVICE ALIGNMENTS
IMPORTANT: There will no adjustments in this service mode during production mode alignments.
- Press BLUE key on the remote transmitter when Production mode is active.
- Press the colour key of the related item group's headline colour
- Press cursor-up and/or cursor-down to select the item of the group
- Press cursor-left and/or cursor-right to alter the value of the item.
- Press OK to store the values of items and MENU to exit the service alignments mode.

5) ADJUSTMENTS GROUP
- Press RED key on the remote transmitter in order to access this group of items.
1) GAMMA CORRECTION
2) PEAK WHITE
3) PIP CNTRST
4) PIP FRAME
5) EHT COMPRS
6) EHT COMPAN
7) A-EHT COMP
8) REST. NVM
9) NVM-EDITOR
10) VPS/PDC/NI

6) OPTIONS GROUP
- Press BLUE key on the remote transmitter in order to access this group of items.
1) HPHONE
2) CRT
3) S-VHS
4) COMB
5) F(IF)
6) TURK
7) VGA

7) SYSTEM GROUP
- Press YELLOW key on the remote transmitter in order to access this group of items.
1) PAL BG
2) PAL DK
3) PAL I
4) SECAM BG
5) SECAM DK
6) SECAM LL'
7) NTSC BG
8) NTSC M
9) PAL M
10) PAL N

GENERAL BLOCK DIAGRAM OF CHASSIS 11AK18



ELECTRONIC COMPONENTS PART LIST

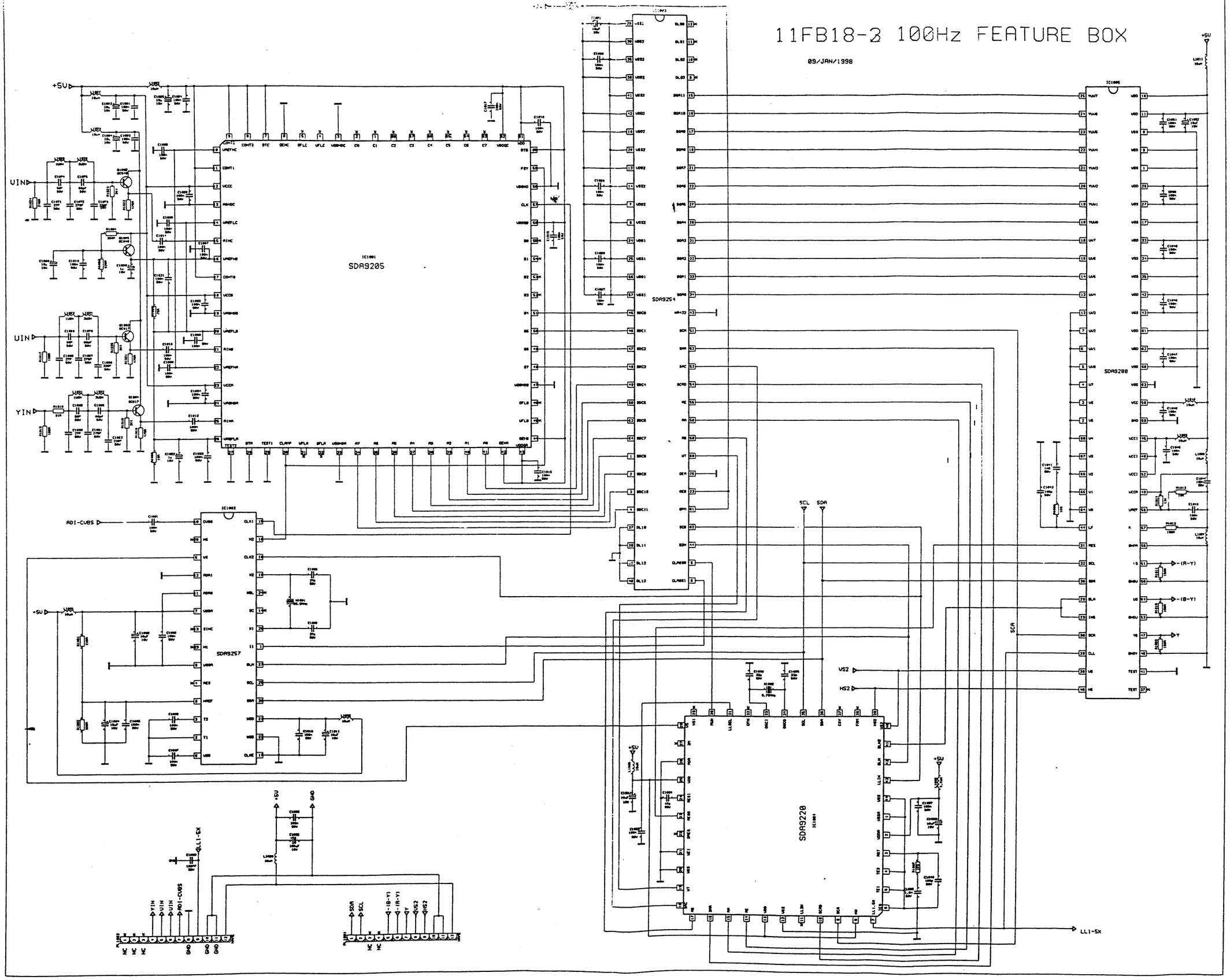
POZ.NO	VESKOD	DESCRIPTION
IC404	3621672640	IC TDA7264
IC505	3620024320	IC 24LC32
IC503	3620027020	IC CY27C020
IC403	3620836650	IC U3665
IC401	3621547800	IC TDA4780
IC402	3621591430	IC TDA9143
X504	3840144310	XTAL 4.433619 MHZ
IC503	3862013200	SOCKET IC 32P
L406	4262220001	COIL FTZ/RAD
IC503	5325095017	LABEL IC 14*20
L511	4010000019	FERRITE BAR 5*8
IC502	3620051440	IC HYB514400
IC504	3621630264	IC SDA30C264
IC501	3621652730	IC SDA5273
X502	3840112020	XTAL 12MHZ
X501	3840420520	XTAL REZ 20.48MHZ
TU401	3924224317	TUNER WSP (PLL) 38.9 MK2
C560	3082290856	CAP EL 2.2UF 50V M
R534	3313330437	RES CF 1/4W 33K J
D503	3531941480	DIODE 1N4148
D401	3570006200	DIODE ZENER 6.2V 1/2W
D502	3571903600	DIODE ZENER 3.6V ZPD
D520	3571903600	DIODE ZENER 3.6V ZPD
D405	3571905100	DIODE ZENER 5.1V ZPD
Q519	3611905580	TR BC558B
C451	3014741036	CAP MKT 470NF 63V J
C453	3014741036	CAP MKT 470NF 63V J
C454	3061020146	CAP CER 1NF 50V K B
C401	3081000856	CAP EL 10UF 50V M
Q804	3611905480	TR BC548B
F801	5357055001	FUSE HOLDER TK79-A
Q800	3611800910	TR BUZ91A
D813	3551500290	DIODE BYW29
Q805	3611602350	TR BD235
IC803	3620930230	IC MOC3023
IC802	3621100800	IC CQY80NG (OPT.COUPLER)
Q801	3621104310	IC TL431
IC801	3621846051	IC TDA4605-3
D804	3671501370	TRIAC BT137 600V
TR802	4041705110	TRF SMPS (AK18)
TR803	4041705111	TRF SMPS FOR STANDBY (AK18)
TR801	4060002113	LINE FILTER 2X22MH (AK16)
PL805	4930300208	CONN.ASSY.2P 30CM (AK18 DS)
Q1101	3611905480	TR BC548B
R1105	3361000437	RES FUSE 1/4W 10R J
IC1101	3621893628	IC SDA9362
X1101	3840112020	XTAL 12MHZ
PL1101	3861501102	CONN.FEMALE 11P MOLEX (AHPB)
PL1102	3861501102	CONN.FEMALE 11P MOLEX (AHPB)
Q1005	3611908488	TR BC848B SMD
C1057	3081090856	CAP EL 1UF 50V M
IC1001	3621892058	IC SDA9205
IC1004	3621892208	IC SDA9220
IC1003	3621892540	IC SDA9254
IC1002	3621892570	IC SDA9257
IC1005	3621892808	IC SDA9280
X1001	3840120520	XTAL 20.50MHZ
X1002	3840167510	XTAL 6.75MHZ
PL1001	3861501202	CONN.FEMALE 12P MOLEX
TR601	4031705111	TRF FBT AK18 (1627)
IC605	3621583511	IC TDA8351/N5
	5105135030	SPRING TR.HOLDER (BIG)
	5326065500	HEATSINK 11HV18 VERTICAL
Q606	3611504440	TR BUK444-200A
D606	3611600320	DIODE DMV32B
Q601	3611610150	TR BUH1015T
D625	3551607450	DIODE STPS745F
IC602	3620678081	IC LM7808
IC604	3620934167	IC MC34167
IC601	3620978120	IC MC7812CT
IC603	3621678050	IC L7805CV SGS
	5105135040	SPRING TR.HOLDER (MEDIUM)
	5326065502	HEATSINK 11HV18 REGULATOR
	5562025040	INSULATOR SILICON PAD (15*20)
	8051110300	NUT C ZN BOTTOM M3
L315	4012224022	FIXED COIL 22UH Q40 K
R334	3361000437	RES FUSE 1/4W 10R J
IC303	3621664150	IC TEA6415C
IC302	3621664200	IC TEA6420
IC301	3621934101	IC MSP3410D
X301	3840418420	XTAL 18.432MHZ
SC301	3862050006	SOCKET SCART (R) VER BLACK
SC302	3862050007	SOCKET SCART (R) VER BLUE
	2947800001	SW B.ASSY.11DS18 HP
IC304	3621513080	IC TDA1308
SC303	3862050008	SOCKET SCART (R) VER ORANGE
	2950000417	OPT.COMP.AK18(100HZ) FOR CHS.
Q901	3611504220	TR BF422
	3621561110	IC TDA6111Q
R944	3361021137	RES FUSE 1W 1K J
R927	3364790237	RES FUSE 1/2W 4.7R J
T107	4010000017	FERRITE AK18 AUDIO

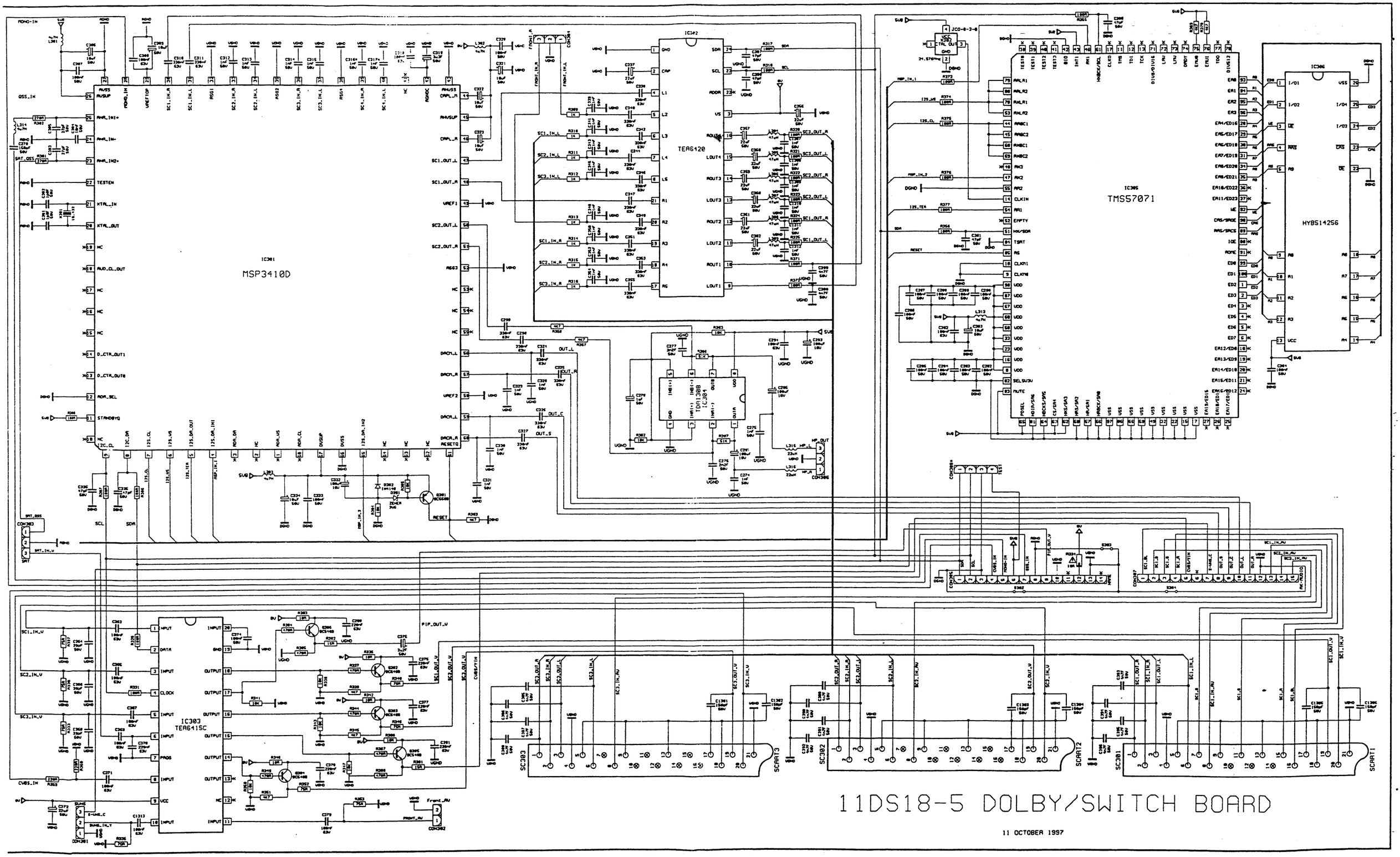
POZ.NO	VESKOD	DESCRIPTION
C517	3081000856	CAP EL 10UF 50V M
C570	3081000856	CAP EL 10UF 50V M
C580	3081000856	CAP EL 10UF 50V M
C625	3081001454	CAP EL 10UF 250V M
C902	3081001454	CAP EL 10UF 250V M
C028	3081010356	CAP EL 100UF 16V M
C100	3081010356	CAP EL 100UF 16V M
C336	3081010356	CAP EL 100UF 16V M
D509	3531941480	DIODE 1N4148
D510	3531941480	DIODE 1N4148
D602	3531941480	DIODE 1N4148
D603	3531941480	DIODE 1N4148
D607	3531941480	DIODE 1N4148
D608	3531941480	DIODE 1N4148
D701	3531941480	DIODE 1N4148
D823	3531941480	DIODE 1N4148
D816	3551500261	DIODE BYM26D
D814	3551500953	DIODE BYW95A
D815	3551500953	DIODE BYW95A
D811	3551900331	DIODE BYD33D
D812	3551900331	DIODE BYD33D
D813	3551900331	DIODE BYD33D
D605	3551901570	DIODE BA157
D606	3551901570	DIODE BA157
D609	3551901570	DIODE BA157
D601	3551901590	DIODE BA159
D805	3551901590	DIODE BA159
D807	3551901590	DIODE BA159
D818	3551901590	DIODE BA159
D826	3551901590	DIODE BA159
D827	3551901590	DIODE BA159
D801	3551940070	DIODE 1N4007
D802	3551940070	DIODE 1N4007
D803	3551940070	DIODE 1N4007
D804	3551940070	DIODE 1N4007
D901	3551940070	DIODE 1N4007
D902	3551940070	DIODE 1N4007
D903	3551940070	DIODE 1N4007
D408	3570008200	DIODE ZENER 8.2V
D819	3570011000	DIODE ZENER 11V
D505	3571903600	DIODE ZENER 3.6V ZPD
D604	3571933000	DIODE ZENER 33V UZT 33B
Q810	3610902260	TR MCR22-6
Q802	3610936000	TR MTP3N60E
Q303	3611502400	TR BF240
Q604	3611506390	TR BC639
Q605	3611525060	TR 2506DF
IC303	3620040530	IC HEF4053BP (MN4053B)
IC807	3620078050	IC LM78M05 BIG
IC802	3620946040	IC MC44604P
IC805	3620978080	IC LM7808
IC801	3621100800	IC CQY80NG (OPT.COUPLER)
Q809	3621104310	IC TL431
IC305	3621513080	IC TDA1308
IC100	3621526150	IC TDA2615
IC901	3621561070	IC TDA6107Q/N1C
IC701	3621583560	IC TDA8356
IC401	3621588420	IC TDA8842
IC302	3621598180	IC TDA9818
IC301	3621598750	IC TDA9875
	3621624080	IC ST24C08
IC050	3621664150	IC TEA6415C
	3621678050	IC L7805CV SGS
IC501	3621852551	IC SDA5255 (AK19) PLL/ATS
	3622408000	IC 24C08 001155B10011510200
MD501	3660536000	PREAMPLIFIER TFMS5360
Z300	3750239530	FILTER SAW OFWK3953M
Z401	3750239530	FILTER SAW OFWK3953M
Z301	3750294540	FILTER SAW L9454
Z209	3780105500	FILTER SER TRAP TPS 5.5MHZ
	3807250050	FUSE 2.5A 250V 5*20MM
X301	3840124510	XTAL 24.576MHZ
X401	3840144310	XTAL 4.433619 MHZ
X501	3840418020	REZ 18MHZ
PL100	3861200204	CONN.MALE 2P (2052) GRAY
PL101	3861200206	CONN.MALE (2052) BLACK
PL056	3861200211	CONN.MALE 2P (2052) BLUE
PL058	3861200301	CONN.MALE 3P (2003) GRAY
PL059	3861200303	CONN.MALE 3P (2003) BLUE
PL303	3861200307	CONN.MALE 3P(2703) RED
PL304	3861200308	CONN MALE 3P(2703) GREEN
PL304	3861200308	CONN MALE 3P(2703) GREEN
PL050	3861200501	CONN.MALE 5P (2005)
PL801	3861500200	CONN.MALE 2P MOLEX
	3861500201	CONN.FEMALE 2P MLX
PL403	3861501201	CONN.MALE 12P MOLEX
PL301	3861501202	CONN.FEMALE 12P MOLEX

POZ.NO	VESCOD	DESCRIPTION
D302	3531941480	DIODE 1N4148
D303	3531941480	DIODE 1N4148
D420	3531941480	DIODE 1N4148
D503	3531941480	DIODE 1N4148
D504	3531941480	DIODE 1N4148
D506	3531941480	DIODE 1N4148
D507	3531941480	DIODE 1N4148
D508	3531941480	DIODE 1N4148
PL404	3861501401	CONN.MALE 14P MOLEX
PL302	3861501402	CONN.FEMALE 14P MOLEX
PL601	3861820406	HRZ VRT CONN.(4P)
PL900	3862021001	SOCKET CRT NARROWNECK W/GND
SC050	3862050004	SOCKET SCART (R)
SC051	3862050004	SOCKET SCART (R)
PL113	3863010315	JACK RCA 3P (BACK AV) 180ø
PL1204	3863011021	RCA JACK 1P WHITE (180ø)
PL1205	3863011022	RCA JACK 1P RED (180ø)
PL1203	3863011023	RCA JACK 1P YELLOW (180ø)
PL102	3863120300	JACK HEADPHONE STEREO WO/SW
TU201	3924224317	TUNER WSP (PLL) 38.9 MK2
	3962112128	CRT 21/VCL A51EFS83X191
	3970801505	SPEAKER 8R15W (77*128)
L309	4010000025	FERRITE BEAD (0805) BLM21B201S
L306	4010000032	FERRITE BEAT (805) BLM21A601S
L307	4010000032	FERRITE BEAT (805) BLM21A601S
L201	4011104512	FIXED COIL 1UH Q45 M-A
L312	4011104512	FIXED COIL 1UH Q45 M-A
L801	4011225511	FIXED COIL 2.2UH Q55 M-AX
L301	4011336522	FIXED COIL 3.3UH Q65 K
L402	4011336522	FIXED COIL 3.3UH Q65 K
L302	4011477022	FIXED COIL 4.7UH Q70 K-A
L303	4011477022	FIXED COIL 4.7UH Q70 K-A
L304	4011477022	FIXED COIL 4.7UH Q70 K-A
L305	4011477022	FIXED COIL 4.7UH Q70 K-A
L501	4011685026	FIXED COIL 6.8UH K RAD
L403	4011687522	FIXED COIL 6.8UH Q75 K
L405	4012106522	FIXED COIL 10UH Q65 K-A
L406	4012106522	FIXED COIL 10UH Q65 K-A
L407	4012106522	FIXED COIL 10UH Q65 K-A
L502	4012106522	FIXED COIL 10UH Q65 K-A
L503	4012106522	FIXED COIL 10UH Q65 K-A
L101	4012224022	FIXED COIL 22UH Q40 K
L102	4012224022	FIXED COIL 22UH Q40 K
L803	4013150017	COIL CHOKE 150UH 0.82A RAD
L050	4013155022	FIXED COIL 150UH Q50 K (RAD)
L051	4013155022	FIXED COIL 150UH Q50 K (RAD)
LT401	4020150002	ADJ COIL 150NH Q50
LT301	4020251002	ADJ COIL 251NH Q50
TR602	4030001909	TRF FBT 90ø (AK19)
TR802	4041804900	TRF SMPS AK19 90ø (170-270V)
TR601	4050001902	LINE DRIVER NEW TYPE
TR801	4060001100	LINE FILTER 2*27MH
	4072109011	DEGAUSS COIL&EARTH CABLE (21)
L603	4090109000	LINEARITY COIL 50UH (06-06A)
SW801	4390122000	SWITCH ON/OFF PANASONIC
SW501	4390407100	SWITCH TACT SKHHLU
SW502	4390407100	SWITCH TACT SKHHLU
SW503	4390407100	SWITCH TACT SKHHLU
SW504	4390407100	SWITCH TACT SKHHLU
PL100	4930250300	CONN.ASSY.3/25 SHIELD BLUE CON
PL101	4930250301	CONN.ASSY.3/25 SHIELD GRAY CON
	4930280300	CONN.ASSY.3/28 SHIELD BLUE CON
	4930280301	CONN.ASSY.3/28 SHIELD GREY CON
	4930450400	CABLE 4/45 FC (FLAMAN) WO/SOC
	4930450401	CONN.ASSY.4/45 R26 (HRZ&VER)
	4930450502	CABLE 5/45FC (RGB AK19) WO/SOC
	4930500204	CON.ASSY.2/50 R2.6 SPK/(R)
	4930500215	CONN.ASSY.2/50 W/BLK SPK/(L)
PL1201	4930550202	CONN.ASSY.2/55 W/SHIELD BLUE
PL101	4930550301	CONN.3/55 W/RED (HEADPHONE)
PL1202	4930550302	CONN.ASSY.3/55 W/SHIELD GREEN
	4941412415	POWER CORD ASSY.(2.4MT W/FTZ)
	5124030022	BRACKET HP XX55/65 7282/92(19)
	5127025023	SHIELD AK19 SIDE
	5127025024	SHIELD AK19 (TOP)
	5127025026	SHIELD AK19 (BOTTOM W/PVC)
	5326065097	HEATSINK 16/19-REGULATOR(2)
	5326065150	HEATSINK 19-CRT BOARD
	5326065156	HEATSINK 19-REG&AUDIO
	5326065157	HEATSINK 19-HOR&VER BACKAV 90'
	5326065159	HEATSINK 19-PRIMER 90'
F801	5357055001	FUSE HOLDER TK79-A
	5501035023	HEATSINK BRACKET
	5501035024	BRACKET HEATSINK BACK AV AK19

11FB18-2 100Hz FEATURE BOX

09/JAN/1998




MSP3410D
TEA6120
TMS57071
HYB5142S6
TDA1308
TEA6415C
11DS18-5 DOLBY/SWITCH BOARD
11 OCTOBER 1997

IF

FEATURE BOX

DIGITAL DEFLECTIO

POWER

& VERTICAL

HORIZONTAL

IC501
SDA5273

IC584
SDA30264

HYB514400

CY27C020

DIGITAL DEFLECTION BOARD

COMB FILTER

SATELLITE

PIP

DOLBY PROLOGIC AND AUDIO VIDEO SWITCH

IC401 TDA4780

IC402 TDA9143

IC403 TDA4665

IC406 HEF4053B

IC407 74HC86

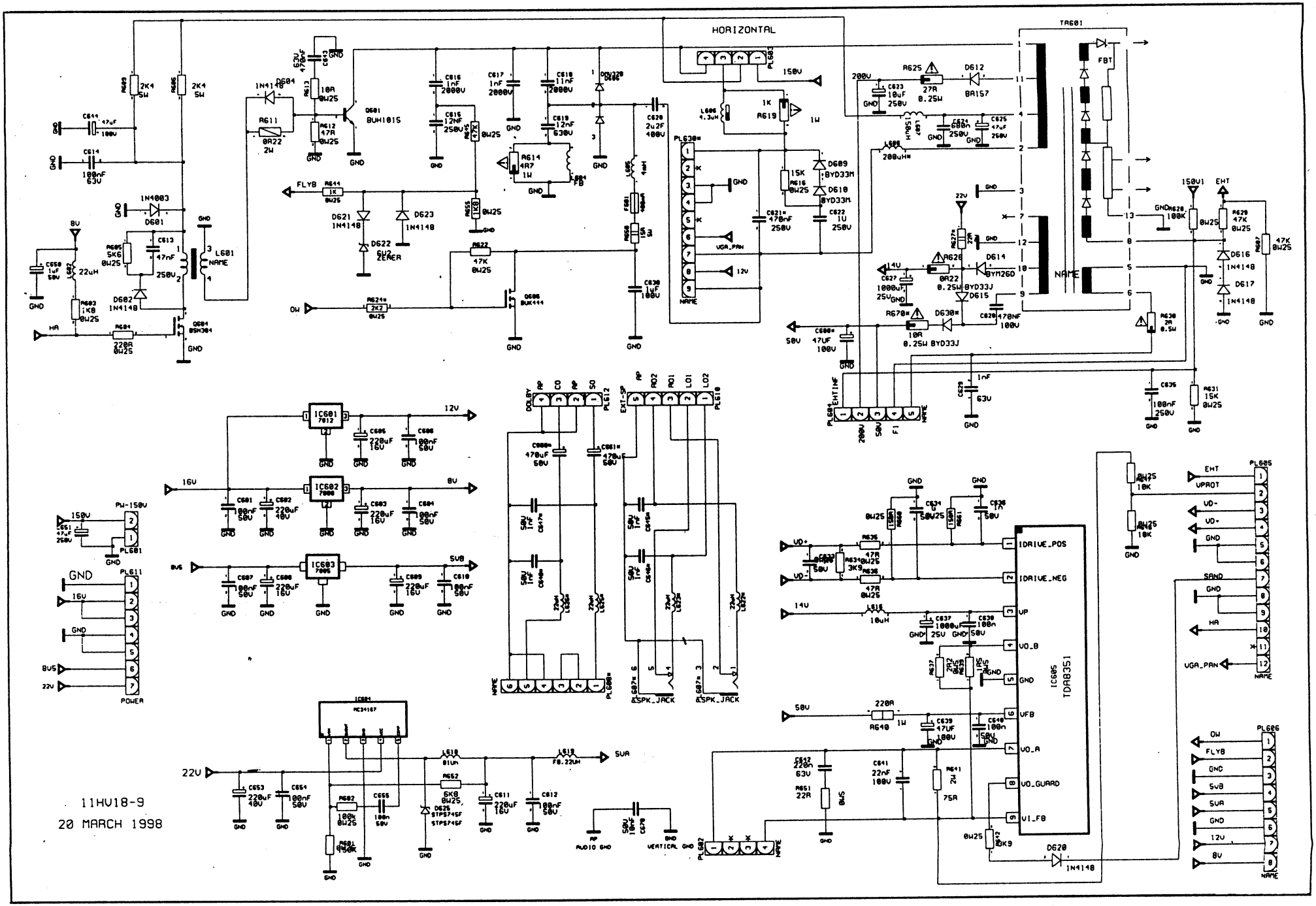
IC505 24LC32

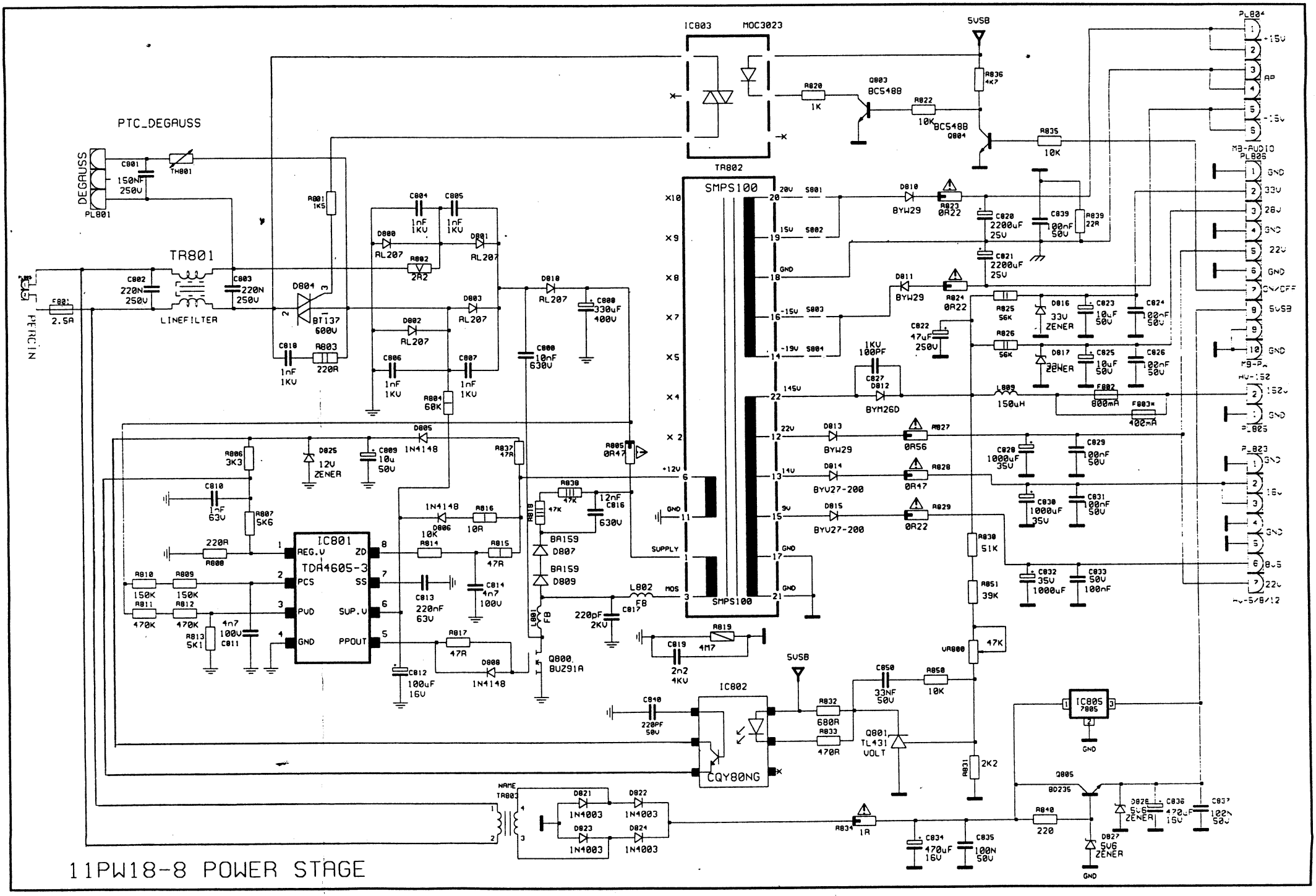
IC503 CY27C020

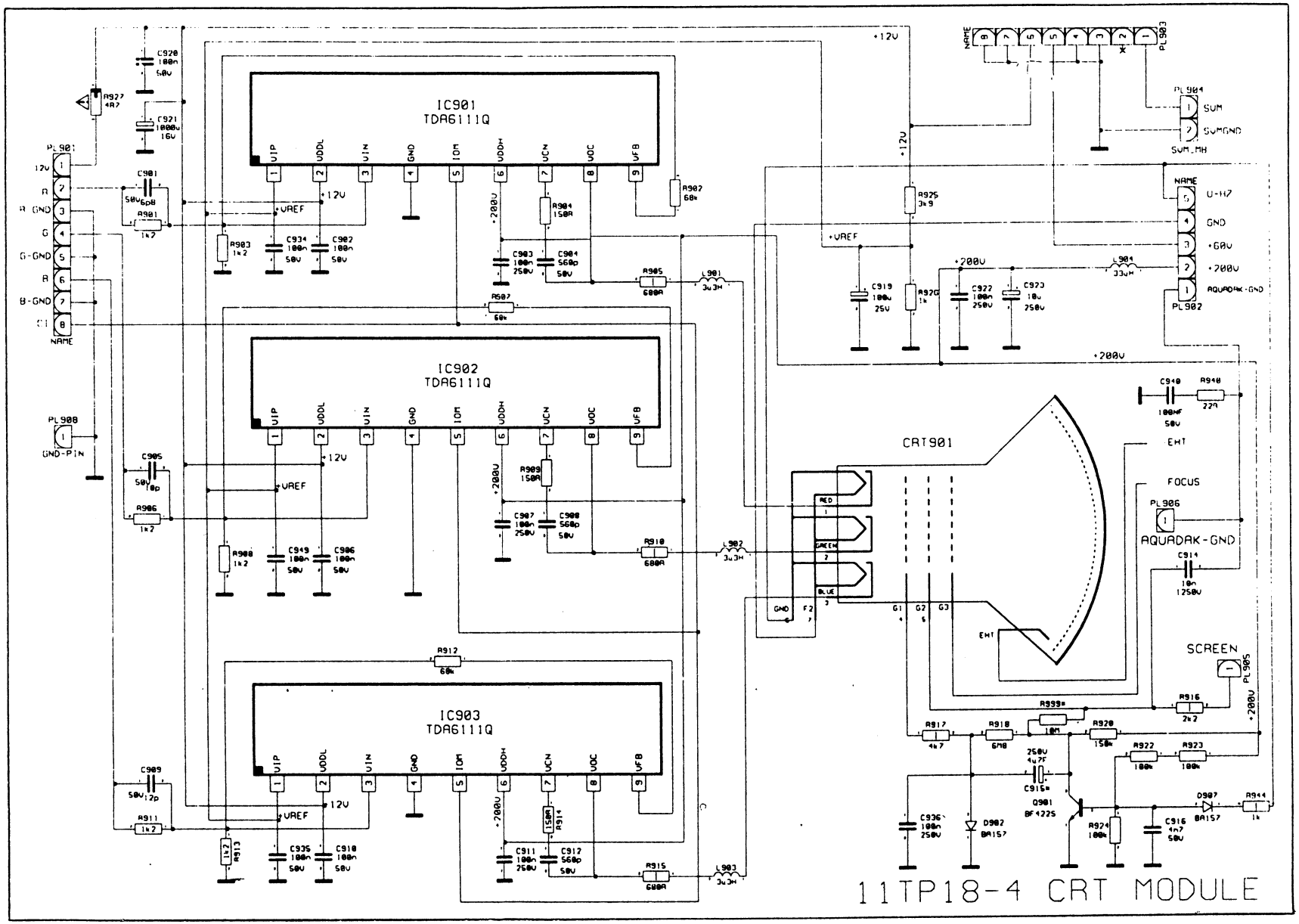
TDA7264

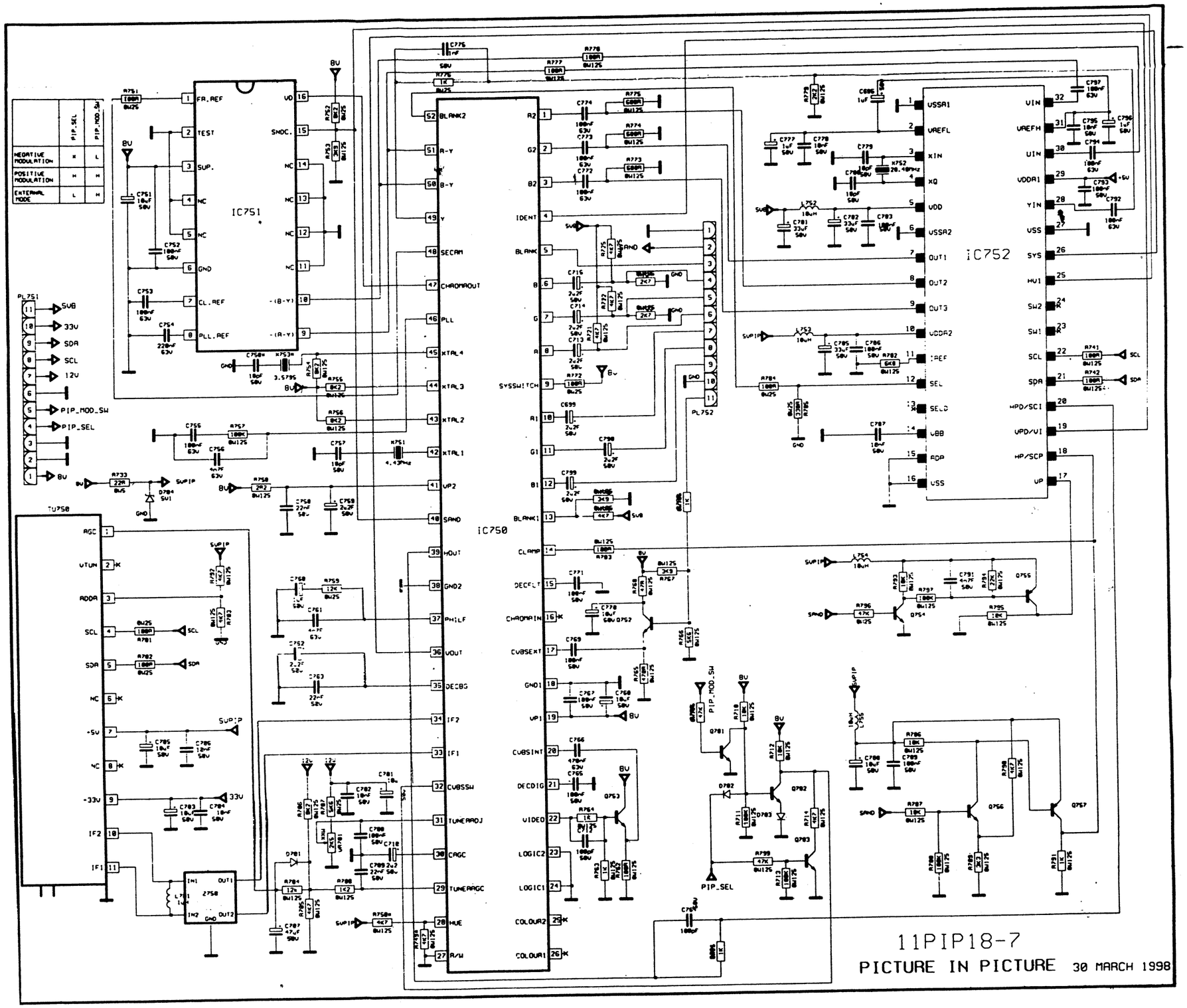
TDA7264

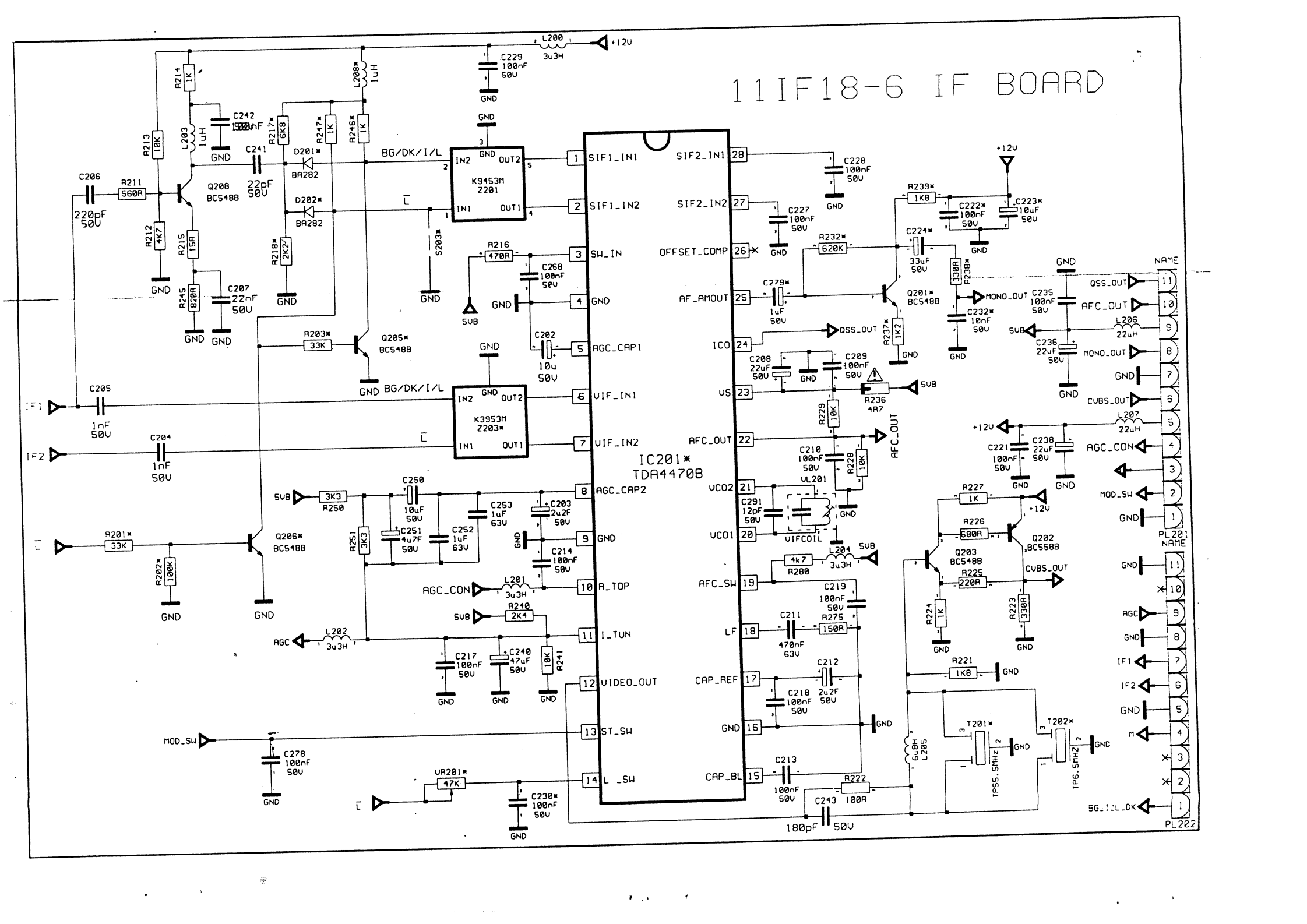
11MB18-7 MAIN BOARD

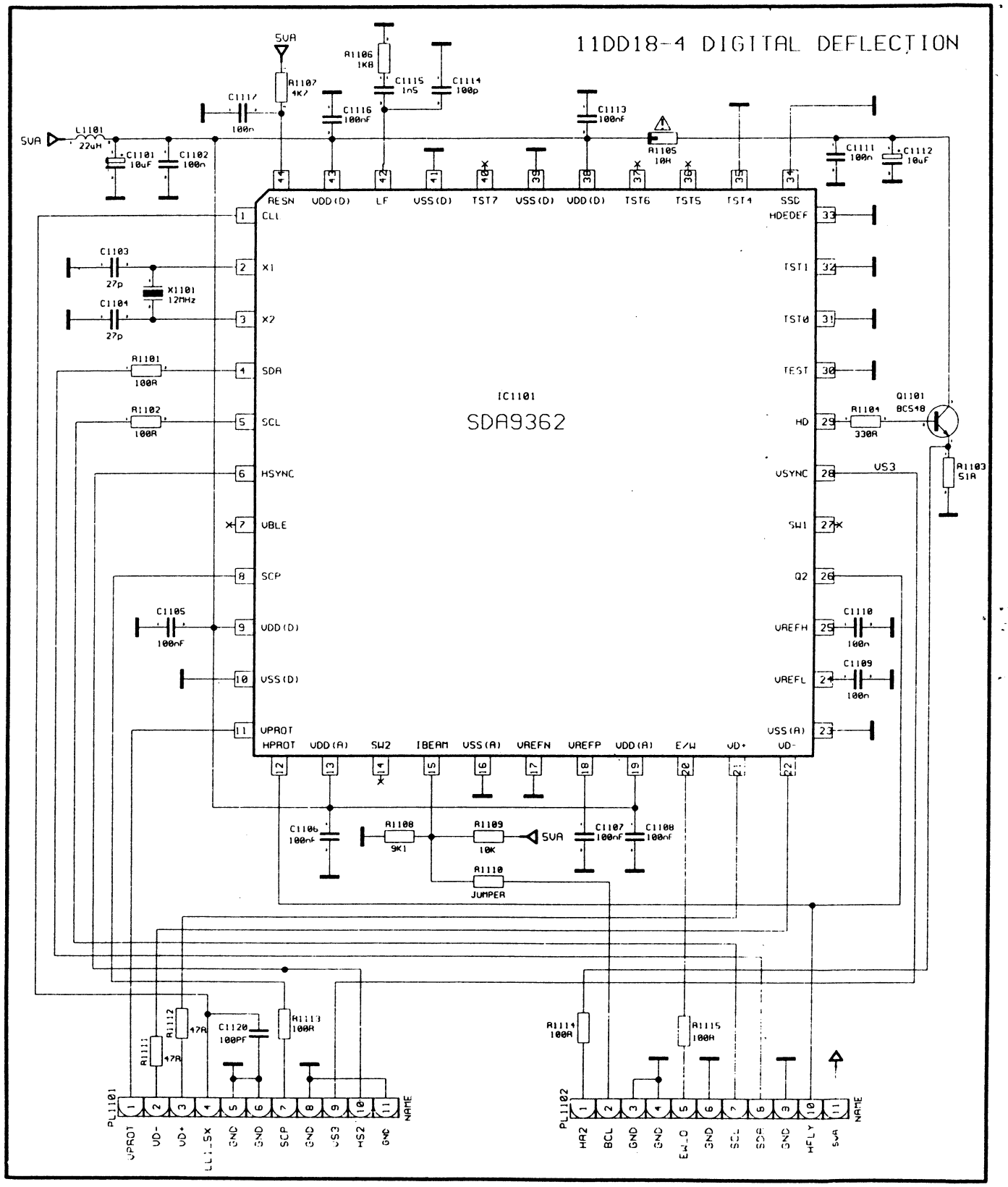

HORIZONTAL
TDA8351
IC601
IC602
IC603
11HV18-9
20 MARCH 1998

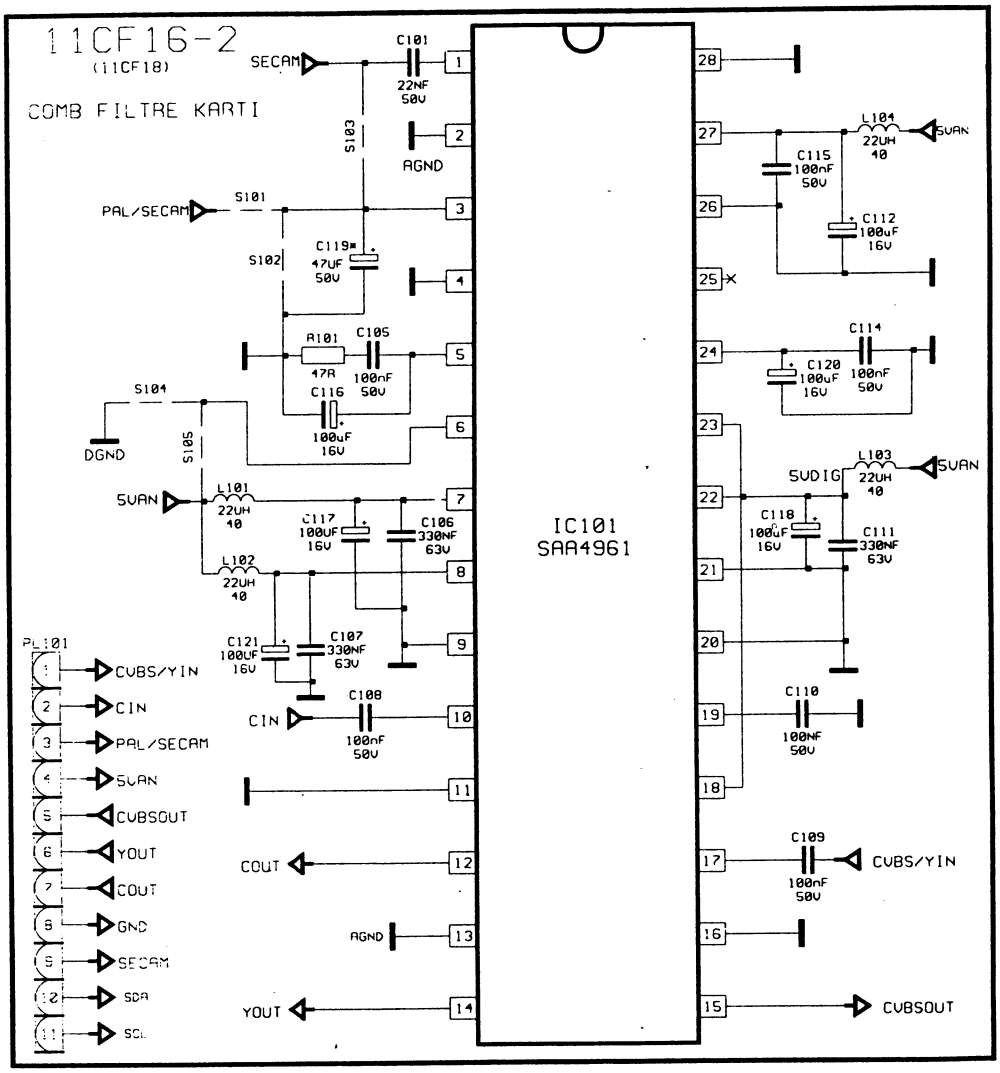

PTC_DEGAUSS
DEGAUSS
PL801
TH801
C801 150NF 250V
TR801
C802 220N 250V
C803 220N 250V
LINEFILTER
F801 2.5A
MAINS IN
D804 BT137 600V
C818 1nF 1KV
R803 220R
R801 1K5
C804 1nF 1KV
C805 1nF 1KV
D800 RL207
D801 RL207
R802 2R2
D802 RL207
D803 RL207
C806 1nF 1KV
C807 1nF 1KV
R804 68K
D818 RL207
C808 330uF 400V
C809 10nF 630V
IC803 MOC3023
TR802
R820 1K
Q803 BC548B
R822 10K
Q804 BC548B
5VSB
R836 4K7
R835 10K
SMPS100
D810 BYW29
R823 0R22
C820 2200uF 25V
C821 2200uF 25V
C839 100nF 50V
R839 22R
D811 BYW29
R824 0R22
C822 47uF 250V
R825 56K
R826 56K
D816 33V ZENER
D817 33V ZENER
C823 10uF 50V
C825 10uF 50V
C824 100nF 50V
C826 100nF 50V
1KV 100PF
C827
D812 BYM26D
L809 150uH
F802 800mA
F803 400mA
D813 BYW29
R827 0R56
C828 1000uF 35V
C829 100nF 50V
D814 BYV27-200
R828 0R47
C830 1000uF 35V
C831 100nF 50V
D815 BYV27-200
R829 0R22
C832 35V 1000uF
C833 50V 100nF
R830 51K
R851 39K
VR800 47K
R831 2K2
C850 33NF 50V
R850 10K
R832 680R
R833 470R
Q801 TL431 VOLT
IC805 7805
GND
Q805 BD235
D826 5V6 ZENER
C836 470uF 16V
C837 100N 50V
R840 220
D827 5V6 ZENER
R834 1R
C834 470uF 16V
C835 100N 50V
IC801 TDA4605-3
REG.V
PCS
PVD
GND
ZD
SS
SUP.V
PPOUT
R806 3K3
D825 12V ZENER
C809 10u 50V
D805 1N4148
R837 47R
R805 0R47
C810 1nF 63V
R807 5K6
220R R800
R810 150K
R809 150K
R811 470K
R812 470K
R813 5K1
4n7 100V C811
IN4148 D806
R816 10R
R814 47R
R815 47R
C813 220nF 63V
C814 4n7 100V
C812 100uF 16V
R817 47R
D808 1N4148
R838 47K
12nF C816 630V
BA159 D807
BA159 D809
L801 FB
Q800 BUZ91A
L802 FB
220pF 2KV C817
R819
C819 4M7
2n2 4KV
C810 220PF 50V
IC802
CQY80NG
SUPPLY
MOS
+12V
GND
SMPS100
S801 20V
S802 15V
S803 -15V
S804 -19V
145V
22V
14V
9V
GND
X10
X9
X8
X7
X5
X4
X2
NAME TR803
D821 1N4003
D822 1N4003
D823 1N4003
D824 1N4003
PL804
+15V
AP
-15V
MB-AUDIO PL805
GND
33V
28V
GND
22V
GND
ON/OFF
5VSB
GND
PS-ON
PL805
152V
GND
PL823
GND
15V
GND
8V5
22V
PL805
11PW18-8 POWER STAGE

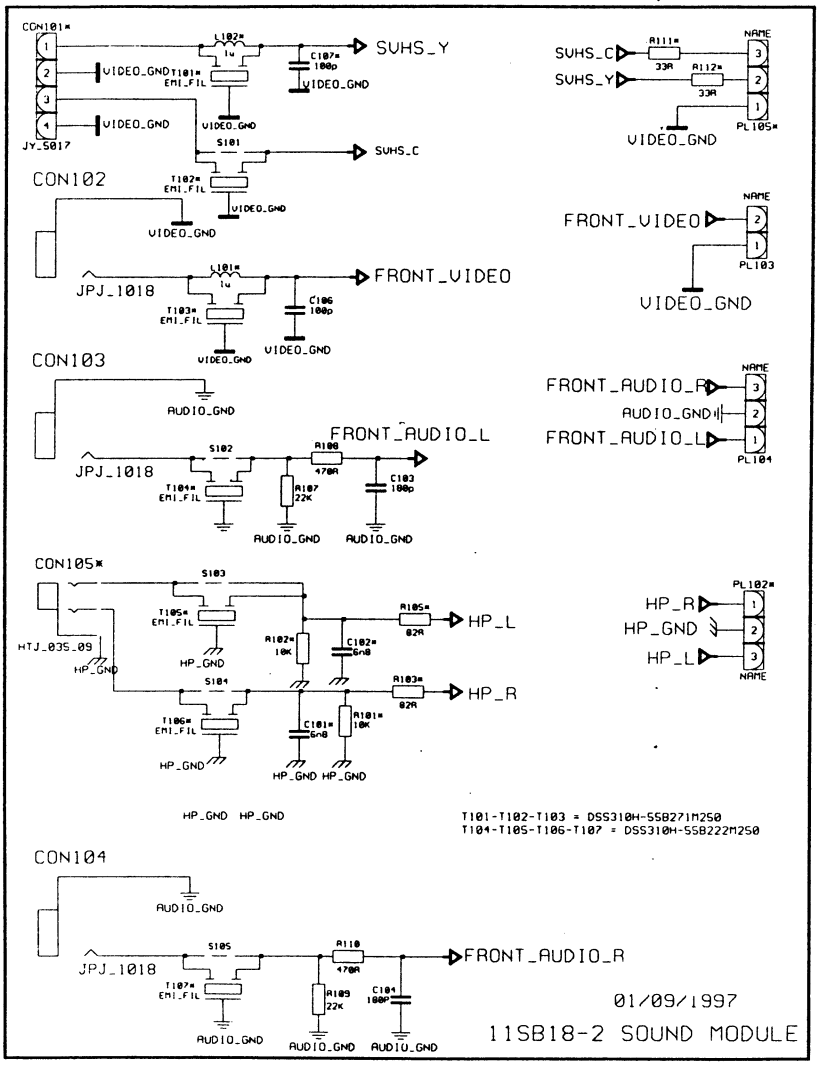

IC901
TDA6111Q
IC902
TDA6111Q
IC903
TDA6111Q
CRT901
11TP18-4 CRT MODULE

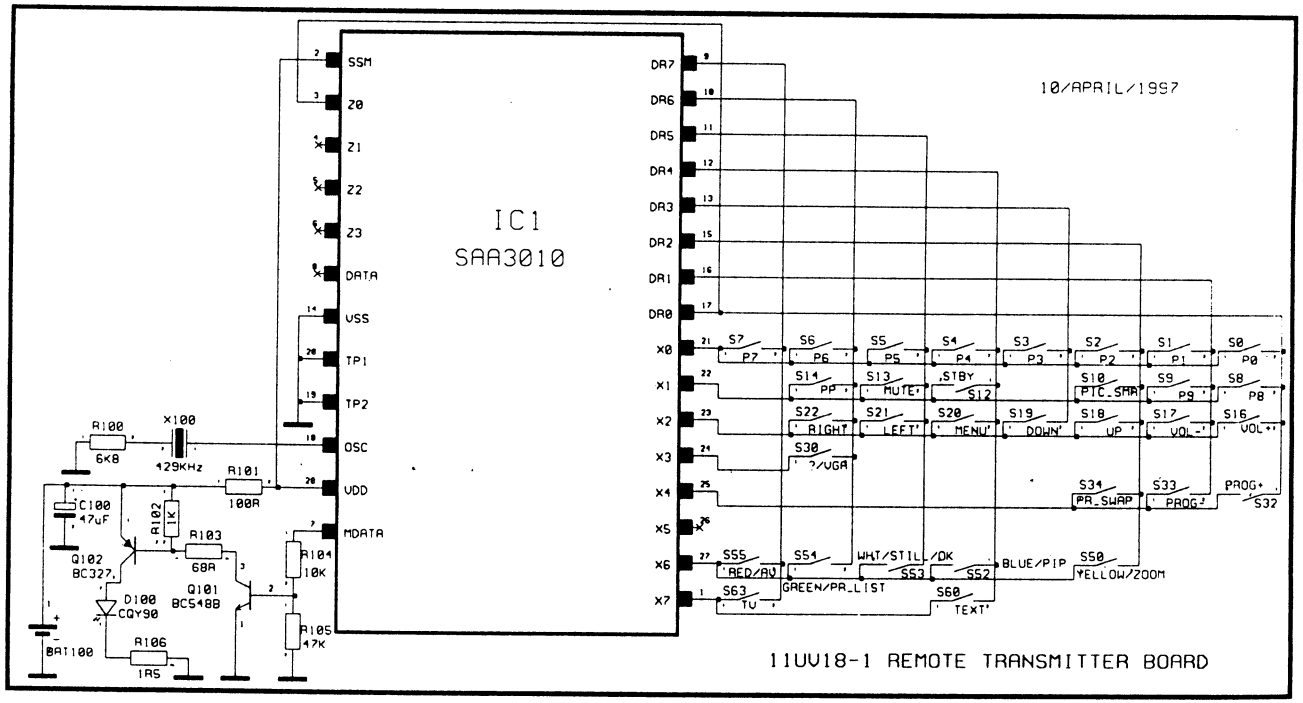

IC751
IC750
IC752
PL751
PL752
TU750
FR.REF
TEST
SUP.
NC
GND
CL.REF
PLL.REF
VD
SNDC.
-(B-Y)
-(R-Y)
PIP_MOD_SW
PIP_SEL
5V8
33V
SDA
SCL
12V
8V
SVIP
BLANK2
R-Y
B-Y
Y
SECAM
CHROMAOUT
PLL
XTAL4
XTAL3
XTAL2
XTAL1
VP2
SAND
HOUT
GND2
PHILF
VOUT
DECBG
IF2
IF1
CVBSSW
TUNERADJ
CAGC
TUNERAGC
HUE
R/W
IDENT
BLANK
SYSSWITCH
BLANK1
CLAMP
DECFLT
CHROMAIN
CVBSEXT
GND1
VP1
CVBSINT
DECDIG
VIDEO
LOGIC2
LOGIC1
COLOUR2
COLOUR1
VSSA1
VREFL
XIN
XO
VDD
VSSA2
OUT1
OUT2
OUT3
VDDA2
IREF
SEL
SELO
VBB
RDP
VSS
VIN
VREFH
VIN
VDDA1
YIN
VSS
SYS
HV1
SW2
SW1
SCL
SDA
HPD/SCI
VPD/VI
HP/SCP
VP
AGC
VTUN
ADDR
SCL
SDA
NC
+5V
NC
-33V
IF2
IF1
33V
11PIP18-7
PICTURE IN PICTURE 30 MARCH 1998


11IF18-6 IF BOARD
IC201*
TDA4470B
SIF1_IN1
SIF1_IN2
SW_IN
GND
AGC_CAP1
VIF_IN1
VIF_IN2
AGC_CAP2
GND
R_TOP
I_TUN
VIDEO_OUT
ST_SW
L _SW
SIF2_IN1
SIF2_IN2
OFFSET_COMP
AF_AMOUT
ICO
VS
AFC_OUT
VCO2
VCO1
AFC_SW
LF
CAP_REF
GND
CAP_BL
K9453M Z201
K3953M Z203*
Q208 BC548B
Q205* BC548B
Q206* BC548B
Q201* BC548B
Q202 BC558B
Q203 BC548B
D201* BA282
D202* BA282
VIFCOIL
VL201
T201* TP55.5MHZ
T202* TP6.5MHZ
L6uH L205
180pF 50V
BG/DK/I/L
MOD_SW
AGC_CON
AGC
IF1
IF2
MONO_OUT
QSS_OUT
AFC_OUT
CVBS_OUT
PL201 NAME
PL202


11DD18-4 DIGITAL DEFLECTION
IC1101
SDA9362
RESN
CLL
X1
X2
SDA
SCL
HSYNC
VBLE
SCP
VDD(D)
VSS(D)
VPROT
HPROT
VDD(A)
SW2
IBEAM
VSS(A)
VREFN
VREFP
VDD(A)
E/W
VD+
VD-
VSS(A)
SW1
Q2
VREFH
VREFL
VSYNC
HD
TEST
TST0
TST1
SSD
HDEDEF
TST4
TST5
TST6
TST7
VDD(D)
LF
VSS(D)
VDD(D)
5VA
VS3
L1101
22uH
C1101
10uF
C1102
100n
C1103
27p
C1104
27p
X1101
12MHz
C1105
100nF
C1106
100nF
C1107
100nF
C1108
100nF
C1109
100n
C1110
100n
C1111
100n
C1112
10uF
C1113
100nF
C1114
100p
C1115
1nS
C1116
100nF
C1117
100n
C1120
100PF
R1101
100R
R1102
100R
R1103
51R
R1104
330R
R1105
10R
R1106
1KB
R1107
4K7
R1108
9K1
R1109
10K
R1110
JUMPER
R1111
47R
R1112
47R
R1113
100R
R1114
100R
R1115
100R
Q1101
BC548
PL1101
VPROT
VD-
VD+
LL1_SX
GND
GND
SCP
GND
VS3
HS2
GND
NAME
PL1102
HA2
BCL
GND
GND
EW_D
GND
SCL
SDA
GND
HFLY
5VA
NAME


11CF16-2
(11CF18)
COMB FILTRE KARTI
IC101
SAA4961
SECAM
PAL/SECAM
DGND
5VAN
5VDIG
AGND
CIN
COUT
YOUT
CVBS/YIN
CVBSOUT
SDA
SCL
GND
S101
S102
S103
S104
S105
C101 22NF 50V
C105 100nF 50V
C106 330NF 63V
C107 330NF 63V
C108 100nF 50V
C109 100nF 50V
C110 100NF 50V
C111 330NF 63V
C112 100uF 16V
C114
C115 100nF 50V
C116 100uF 16V
C117 100UF 16V
C118 100uF 16V
C119 47UF 50V
C120 100uF 16V 100nF 50V
C121 100UF 16V
R101 47R
L101 22UH 10
L102 22UH 10
L103 22UH 10
L104 22UH 10
PL101


CON101*
JY_5017
VIDEO_GND
SUHS_Y
SUHS_C
CON102
JPJ_1018
FRONT_VIDEO
CON103
AUDIO_GND
FRONT_AUDIO_L
CON105*
HTJ_035_09
HP_GND
HP_L
HP_R
HP_GND HP_GND
T101-T102-T103 = DSS310H-SSB271M250
T104-T105-T106-T107 = DSS310H-SSB222M250
CON104
FRONT_AUDIO_R
01/09/1997
11SB18-2 SOUND MODULE



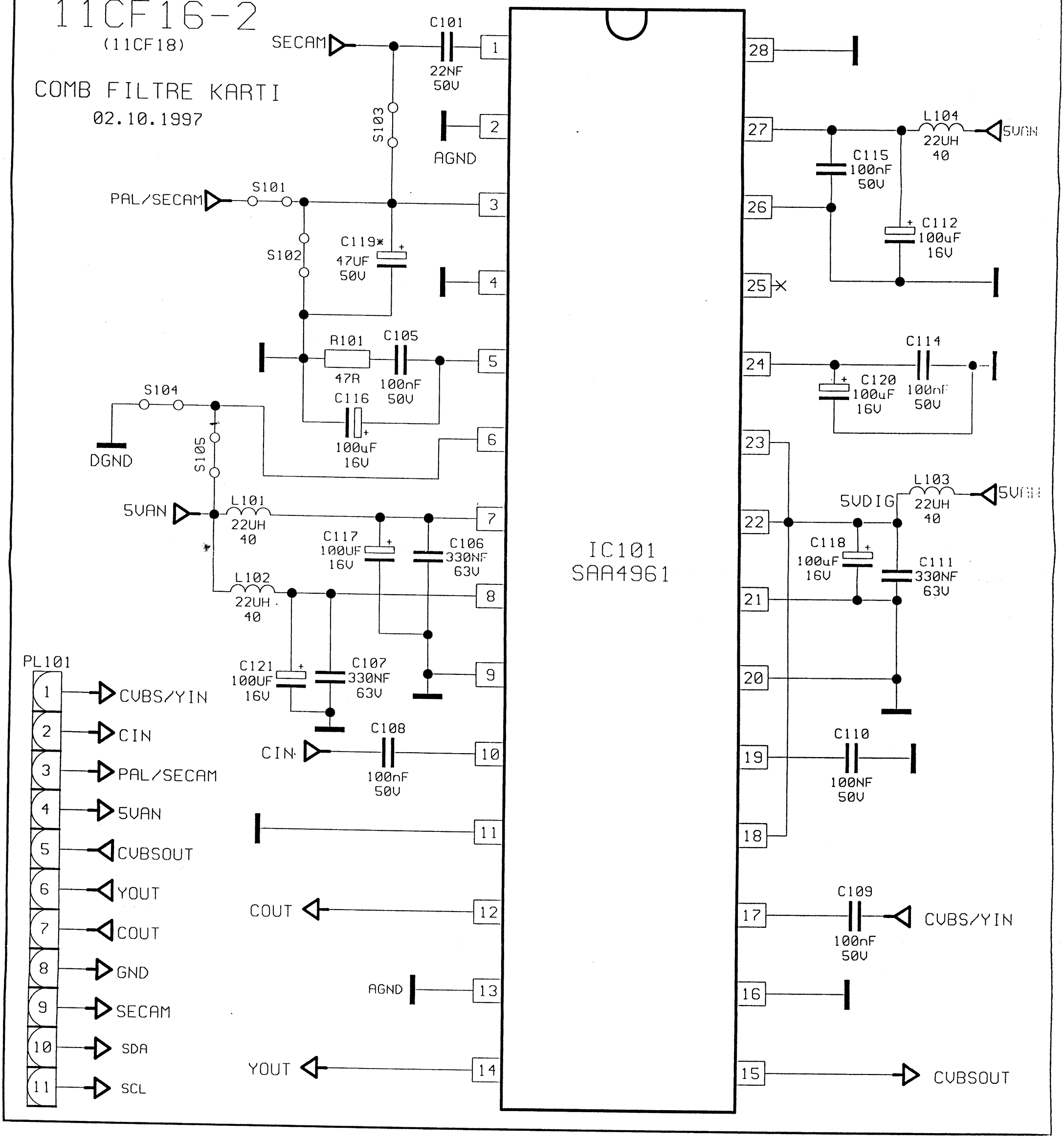
11UV18-1 REMOTE TRANSMITTER BOARD

11CF16-2

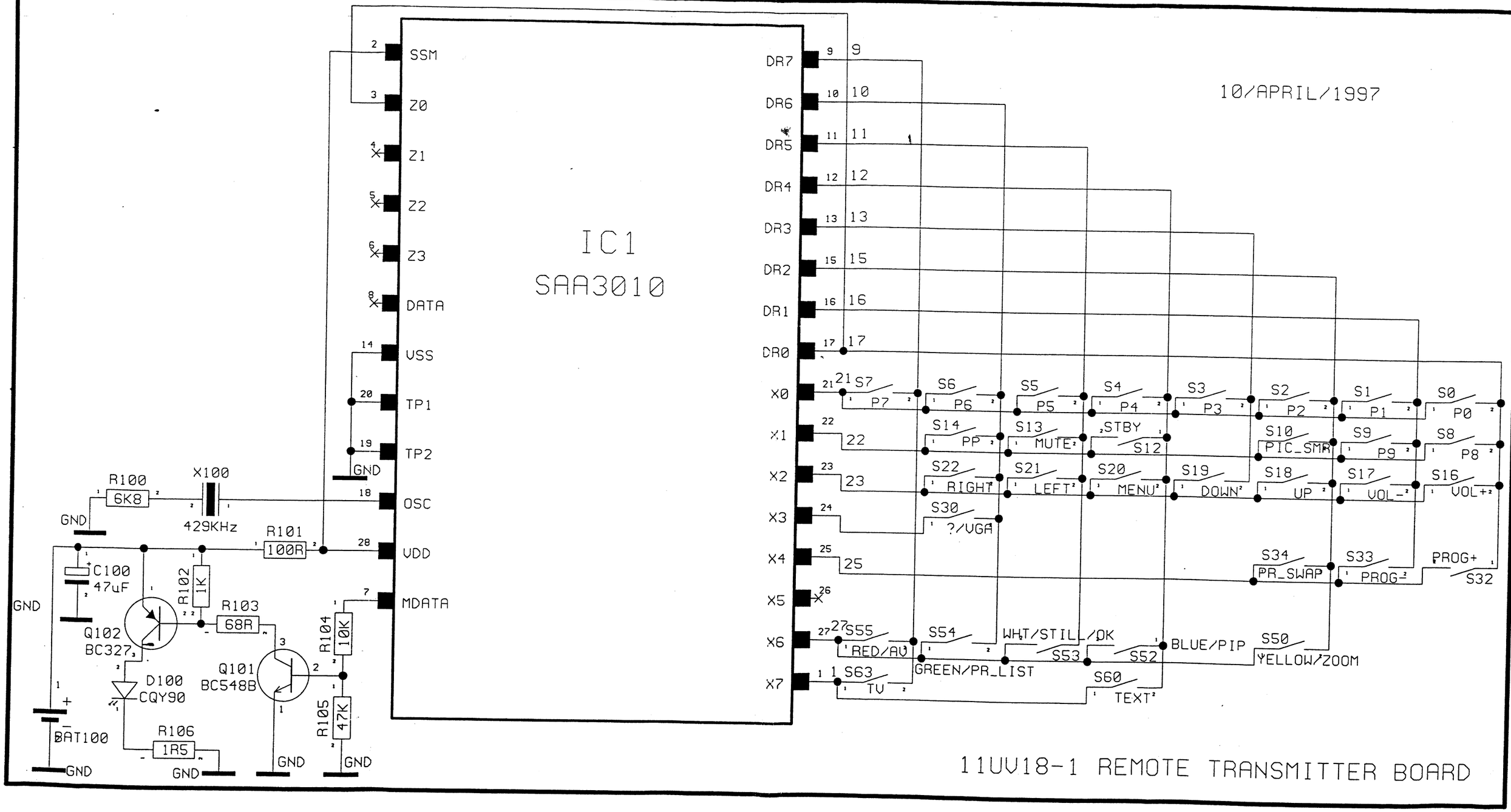
(11CF18)

COMB FILTRE KARTI

02.10.1997



10/APRIL/1997



11UV18-1 REMOTE TRANSMITTER BOARD

11IF18-5 IF BOARD

25 DECEMBER 1997

IC201*
TDA4470B

K9453M
Z201

K3953M
Z203*

PL_201
NAME

PL_202

11DD18-4 DIGITAL DEFLECTION

09/JAN/1998

IC1101

SDA9362

44	43	42	41	40	39	38	37	36	35	34		
RESN	VDD(D)	LF	VSS(D)	TST7	VSS(D)	VDD(D)	TST6	TST5	TST4	SSD		
1 CLL										HDEDEF 33		
2 X1										TST1 32		
3 X2										TST0 31		
4 SDA										TEST 30		
5 SCL										HD 29		
6 HSYNC										VSYNC 28		
7 VBLE										SW1 27		
8 SCP										Q2 26		
9 VDD(D)										VREFH 25		
10 VSS(D)										VREFL 24		
11 VPROT										VSS(A) 23		
HPROT	VDD(A)	SW2	IBEAM	VSS(A)	VREFN	VREFP	VDD(A)	E/W	VD+	VD-		
12	13	14	15	16	17	18	19	20	21	22		

5VA, L1101 22uH, C1101 10uF, C1102 100n, C1117 100n, C1116 100nF, C1115 1n5, R1106 1K8, C1114 100p, C1113 100nF, R1105 10R, C1111 100n, C1112 10uF, GND

C1103 27p, X1101 12MHz, C1104 27p

R1101 100R, R1102 100R, R1107 4K7

C1105 100nF, C1106 100nF, R1108 9K1, R1109 10K, R1110 39K, C1107 100nF, C1108 100nF

R1104 330R, Q1101 BC548, R1103 51R, VS3

C1110 100n, C1109 100n

PL1101

1	2	3	4	5	6	7	8	9	10	11
VPROT	VD-	VD+	LL1_SX	GND	GND	SCP	GND	VS3	HS2	GND

R1111 47R, R1112 47R, R1113 100R, C1120 100PF

PL1102

1	2	3	4	5	6	7	8	9	10	11
HA2	BCL	GND	GND	EW_O	GND	SCL	SDA	GND	HFLY	5VA

R1114 100R, R1115 100R

NAME

IC901
TDPS111Q

IC902
TDA6111Q

IC903
TDA6111Q

PL901
12V
R
R-GND
G
G-GND
B
B-GND
CI
NAME

PL908
GND-PIN

PL903
PL904
SVM
SUMGND
SVM_MB

PL902
NAME
U-HZ
GND
+60V
+200V
AQUADAK-GND

PL905
SCREEN

PL906
AQUADAK-GND

CRT901
RED
GREEN
BLUE
GND
F2
G1
G2
G3
EHT
FOCUS
SCREEN

+12V
+VREF
+200V

C901 6p8 50V
C902 100n 50V
C903 100n 250V
C904 560p 50V
C905 10p 50V
C906 100n 50V
C907 100n 250V
C908 560p 50V
C909 12p 50V
C910 100n 50V
C911 100n 250V
C912 560p 50V
C914 10n 1250V
C915* 250V 4u7F
C916 4n7 50V
C919 100u 25V
C921 1000u 16V
C922 100n 250V
C923 10u 250V
C927 100n 50V
C934 100n 50V
C935 100n 50V
C936 100n 250V
C940 100NF 50V

R901 1k2 0W25
R902 68k 0W25
R903 1k2 0W25
R904 150R 0W25
R905 680R 1W
R906 1k2 0W25
R907 68k 0W25
R908 1k2 0W25
R909 150R 0W25
R910 680R 1W
R911 1k2 0W25
R912 68k 0W25
R913 1k2 0W25
R914 150R 0W25
R915 680R 1W
R916 2k2 2W
R917 4k7 1W
R918 6M8 0W25
R920 150k 0W5
R922 100k 0W25
R923 100k 0W25
R924 100k 0W25
R925 3k9 0W25
R926 1k 0W25
R927 4k7 0.5W
R939 100k 0W25
R940 22R 0W25
R944 1k 1W
R999* 10M 0W25

L901 3u3H 40
L902 3u3H 40
L903 3u3H 40
L904 33uH 60

D902 BA157
D907 BA157

Q901 BF422S

20 JANUARY 1998

11TP18-4 CRT MODULE

PTC_DEGAUSS

DEGAUSS
PL801

C801 150NF 250V

TH801

TR801

PERCIN

F801 2.5A

C802 220N 250V

LINEFILTER

C803 220N 250V

BT137 600V

D804

R803 220R

C818 1nF 1KV

C804 1nF 1KV

C805 1nF 1KV

D800 RL207

R802 1R 5W

D801 RL207

RL207 D802

D803 RL207

C806 1nF 1KV

C807 1nF 1KV

C808 220uF 400V

R804 68R

R805 1K5 0W25

TR802

IC823 MOC8223

R820 1K 0W25

Q803 BC548B

R822 10K 0W25

5V85

0W25 4K7 R836

Q804 BC548B

R835 10K 0W25

PL804
1 +15V
2
3 AP
4
5 -15V
6

MB-AUDIO PL806
1 GND
2 33V
3 28V
4 GND
5 22V
6 GND
7 ON/OFF
8 SVSB
9
10 GND
MB-PW

HV-150
2 150V
1 GND
PL805

PL803
1 GND
2 16V
3
4 GND
5
6 8V5
7 22V
HV-5/8/12

SMPS100

X10 20V S801
X9 15V S802
X8 GND 18
X7 -15V S803 16
X5 -19V S804 14
X4 14SV 22
X 2 22V 12
13 14V
9V 15
GND 17
GND 21
+12V 6
GND 11
SUPPLY 1
MOS 3

D810 BYW29
R823 0R22
C820 2200uF 25V
C839 100n 50V
R839 22R 0W25

C821 2200uF 25V

D811 BYW29
R824 0R22
R825 56K 0W5
D816 33V ZENER
C823 10uF 50V
C824 100nF 50V
C822 47uF 250V
R826 56K 3W
D817 33V ZENER
C825 10uF 50V
C826 100nF 50V

C827 1KV 100PF
D812 BYM26D
L809 150uH
F802 800mA
400mA
F803*

D813 BYW29
R827 0R56 0W25
C828 1000uF 35V
C829 100nF 50V

D814 BYV27-200
R828 0R47 0W25
C830 1000uF 35V
C831 100nF 50V

D815 BYV27-200
R829 0R22 0W16
C832 1000uF 35V
C833 100nF 50V

D818 47V ZENER
D819 47V ZENER
R830 82K 0W25

Q801 BC337
VR800 2K5 .25W
R831 3K6 0W25

IC805
LM2927T
VIN VO RESET DELAY GND
C841 10nF 50V

Q805 BD137
R840 220 0W25
D828 5V6 ZENER
C836 470uF 16V
C837 100N 50V
D827 5V6 ZENER

R832 150R 0W25
R833 560R 0W25
D820 2V4 ZENER

IC802 CQY80NG
C840 220PF 50V

R834 1R 0W25
C834 470uF 16V
C835 100N 50V

TR803
D821 1N4003
D822 1N4003
D823 1N4003
D824 1N4003

R806 3K3 0W25
D825 12V ZENER
C809 10u 50V
D805 1N4148
R837 47R 0W25
R807 5K6 0W25
C810 1nF 63V
R808 220R 0W25

IC801
TDA4605-3
REG.V ZD PCS SS PVD SUP.V GND PPOUT

R810 150K 0W25
R809 150K 0W25
R811 470K 0W25
R812 470K 0W25
R813 5K1 0W25
C811 4n7 100V
C812 100uF 16V

R838 47K 2W
C816 12nF 630V
D806 1N4148
R816 4R7 1W
R818 47K 2W
D807 BA159
D809 BA159
R815 47R 1W
C814 4n7 100V
C813 220nF 63V
R814 10K 0W25
L801 FB
L802 FB
C817 220pF 2KV
R819 4M7 0W5
C819 2n2 4KV
Q800 BUZ91A
R817 47R 0W25
D808 1N4148

R834 1R 0W25

NAME

11 PW 18-5 POWER STAGE 15 OCAK 1998

HORIZONTAL

TR601

11HV18-8

09 JANUARY 1998